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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
OAKLAND DIVISION

In Re

PG&E CORPORATION,

v.

AECOM TECHNICAL SERVICES, INC.

Case No. 4:20-CV-05381-HSG (Lead Case)

(Reference withdrawn from Bankruptcy
Case No. 19-30088, Adv. Proc. No. 20-
03019 and Adv. Proc. No. 19-03008)

(Consolidated with Case No. 3:20-cv-
08463-EMC)

**DECLARATION OF ERIC A.
GRASBERGER IN SUPPORT OF
DAUBERT MOTION TO EXCLUDE
PORTIONS OF EXPERT TESTIMONY
AND REPORTS OF TED SCOTT**

Hearing Date: May 31, 2022
Time: 11:00 a.m.
Location: Courtroom 2

Complaint Filed: January 25, 2019
Trial Date: June 20, 2022

DECLARATION OF ERIC A. GRASBERGER

I, ERIC A. GRASBERGER, declare as follows:

1. I am an attorney licensed to practice law in the State of Oregon, admitted *pro hac vice* in the State of California, and am a Partner at the law firm Stoel Rives LLP, counsel of record for Plaintiff JH Kelly, LLC (“Kelly”). I have personal knowledge of the facts stated in this Declaration and, if called as a witness, could and would testify competently to those facts.

2. I make this Declaration in Support of Kelly’s Daubert Motion regarding Ted Scott.

3. Attached hereto as Exhibit 1 is a true and correct copy of Ted Scott’s Report on Delay dated October 18, 2021.

4. Attached hereto as Exhibit 2 is a true and correct copy of a section extracted from the Ted Scott December 15, 2021 deposition transcript.

5. Attached hereto as Exhibit 3 is a true and correct copy of a section extracted from the Steven Lewis December 6, 2021 deposition transcript.

6. Attached hereto as Exhibit 4 is a true and correct copy of a section extracted from the Dean Goward September 9, 2021 deposition transcript.

7. Attached hereto as Exhibit 5 is a true and correct copy of a section extracted from the subcontract between Kelly and AECOM Technical Services, Inc.

8. Attached hereto as Exhibit 6 is a true and correct copy of Ted Scott’s Reply Report on Delay dated November 16, 2021.

9. Attached hereto as Exhibit 7 is a true and correct copy of James Melvin Torres’ Expert Rebuttal Report for JH Kelly, LLC dated November 16, 2021.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed this 14th day of April, 2022 at Portland, Oregon.

/s/ Eric A. Grasberger
ERIC A. GRASBERGER

EXHIBIT 1



AECOM

Burney Compressor Station

K-2 Replacement Project

Report on Delay

By:
Ted Scott
18 October 2021

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1 Executive Summary

- 1.1 On 11 February 2016, AECOM Technical Services (“AECOM”) entered into an agreement with Pacific Gas and Electric Company (“PG&E”) for the amount of \$40,510,262 to perform all engineering, procurement and construction services required to complete the Burney K2 Replacement Project (“the Project”) at the Burney Compressor Station.¹
- 1.2 AECOM later entered into a subcontract with JH Kelly for the Phase 2 Construction of the Project at a lump sum price of \$14,341,281.00.²
- 1.3 Contractually, the Project was divided into two Phases: with Phase 1 being the time to complete the Engineering of the Project and Phase 2 being for the time to complete the Construction of the Project. According to the Contract, the phases were to be performed sequentially. In other words, Phase 1 was planned to be finished before Phase 2 could commence.
- 1.4 As will be discussed herein, both phases were substantially delayed such that Phase 1 was not Substantially Complete until 5 November 2017 (373 days later than planned) and Phase 2 was not Substantially Complete until 5 June 2018 (201 days later than planned). As will be discussed, part of the delay was due to the fact that Phase 1 was not complete when Phase 2 commenced, so the phases overlapped.
- 1.5 Due to the above delays, I have been retained to independently identify and quantify the cause(s) of delay each phase. While the assessment of responsibility for the delay is ultimately for the Trier of Fact to decide, I have attempted to assist based on my understanding of the various issues.
- 1.6 In performing my assessment, I utilized the “As-Planned vs As-Built Windows” methodology to analyze the delay incurred as, in my opinion, it was the only suitable approach given the condition of the schedules that were submitted during the course of construction. Indeed, one advantage of the “As-Planned vs As-Built Windows” methodology is that it can be performed with less-than-ideal schedule data (i.e., a fully functional baseline is not necessary). The analyst can simply use the baseline schedule as it is found, subjective modifications are not required. As a result, the methodology focuses more directly on the as-built critical path so the Trier of Fact can evaluate all

¹ [BURNEY000075174-BURNEY000075179] FE CCP AECOM 2501335149 02112016 Final fpd3.pdf

² [AEC01036572] JH Kelly CONTRACT 60482831-SC-001_2016-10-21_Fully Executed.pdf

the facts and opinions that lead to that path. The focus can remain on what actually happened, as opposed to modelled events predicting what might happen (i.e., theoretical or prospective analysis).

- 1.7 My analysis for the different phases is summarized below. I note that contractually, Phase 2 included both Construction and Commissioning. However, for ease of discussion, I have separated Commissioning into its own phase (Phase 3).

Phase 1 (Engineering)

- 1.8 Phase 1 of the Project included the Engineering design of the Project and my analysis of this phase is detailed in Section 5 of this report.
- 1.9 From the outset of the Project and even during the Project Kick-off meeting, PG&E knew that the initial 30% design included within the RFP for the Project would need to be revised. As will be discussed below, these known changes to the design (the majority of which were related to the electrical work), ultimately delayed the completion of Phase 1 such that it was not completed until 15 November 2017 – **373 days later than planned**.³
- 1.10 According to the Contract, the Engineering of the Project (i.e., Phase 1) was divided into interim milestones for the 30%, 60%, 90% and 100% IFC design reviews.
- 1.11 In accordance with the Contract Milestone Schedule, AECOM and PG&E conducted the 30% design review on 5 May 2016. However, during the review, several design changes were discussed which essentially caused AECOM to have to go back to the drawing board and start again.⁴
- 1.12 In the months following the 30% design review meeting, I understand that PG&E (via its Engineer Mr. Malsen) requested several more changes which triggered a significant redesign effort by AECOM.⁵
- 1.13 On 31 August 2016, due to the above changes, AECOM finally submitted the 60% design review - **69 days later than planned** (31 August 2016 - 23 June 2016 = 69 days).⁶
- 1.14 In line with the delay already incurred, AECOM submitted the 90% design documents such that the review meeting was held on 2 November 2016 – **69 days later than planned** (2 November 2016 – 25

³ [AEC00058072-AEC00058100] See AECOM Change Order 4

⁴ [AEC00998801-10] 5/5/16 Meeting Minutes.

⁵ Dean Goward deposition page 43

⁶ [AEC00720828-AEC00720834] 8-31-16_BURNEY_K2_MINUTES_FINAL

August 2016 = 69 days).⁷ In other words, AECOM did not incur any further delay between the 60% and 90% drawing reviews.

- 1.15 After the 90% design review meeting, AECOM was able to continue to progress the design of the various engineering disciplines (i.e., Civil, Structural, Mechanical) with the exception of the Electrical design which was placed on hold as it was dependent on PG&E making decisions regarding major electrical equipment.⁸
- 1.16 While AECOM waited for PG&E to make its electrical equipment decisions (so that they in turn could finish the Electrical design), AECOM submitted the 100% stamped IFC drawings for all other design packages (except for Electrical and Fire Suppression). These submissions were approved on 15 January 2017.⁹
- 1.17 Given the planned completion for Phase 1 in the Contract (i.e., 7 November 2017), partial Substantial Completion for Phase 1 was achieved **69 days later than planned** (15 January 2017 – 7 November 2016 = 69 days).¹⁰ Again, with the exception of the Electrical design, AECOM did not incur any further delay between the 90% and 100% IFC drawing reviews.
- 1.18 After receiving PG&E's electrical equipment decisions, AECOM issued an un-stamped electrical IFC package on 24 February 2017.¹¹ However, during the review of these IFC drawings, PG&E noted that they were still making changes to the design. It is also my understanding that a conflict between the proposed duct bank and an existing utility line was discovered at this time.¹²
- 1.19 To expedite the implementation of PG&E's changes post the 100% AECOM submittal, PG&E's Mr. Maslen located himself in AECOM's Oakland offices between March 2017 and May 2017.¹³ While he was there, he changed the basis of design for the wire and conduit which required a complete redesign and redrawing of the Project to an entirely new design criteria.¹⁴

⁷ See As-Built Schedule Activity ID: BCS.165 "90% Design Review"

⁸ [BURNEY000121170] 2016-11-22_BURNEY_K2_MEETING_MINUTES

⁹ [BURNEY000081791-BURNEY000081810] AECOM January 2017 Monthly Report

¹⁰ See As-Built Schedule Activity ID: BCS.180 "Engineering Completion"

¹¹ See Dean Goward deposition Exhibit 66

¹² The conflict between the duct bank and gas line were actually shown on the 30%, 60% and 90% drawings, but neither JH Kelly nor PG&E noted the requirement to alter the duct bank routing to resolve this conflict until the 100% drawings were submitted. See Goward Deposition, Exhibits 62, 63, and 64.

¹³ See Goward Deposition page 85

¹⁴ See Goward Deposition page 85

- 1.20 I understand from discussions with Mr. Lewis, that this new design criteria was a fundamental change which should have been included in the RFP project requirements and was not due to Code requirements. In other words. It was a preferential change that PG&E wanted to make. It is also my understanding that it had the following implications:
- a) Shifting the majority of the above ground conduit into duct banks below ground;
 - b) Changing large conduit with multiple conductors to small conduit with single conductors;
 - c) Changing the ambient temperature at which the wire was to perform;
 - d) Changing conduit spacing requirements;
 - e) both changes “c” and “d” caused an increase in quantity for wire, conduit, and duct bank excavation;
 - f) Increasing the depth of conduit below the Auxiliary Building; and
 - g) Eliminating the below grade wire access points and replacing those with above ground stainless steel pull boxes for the underground duct bank.
- 1.21 In an effort to mitigate the on-going delay to the Electrical design (and the knock-on impact it had to the construction work), AECOM issued the drawings in a piecemeal fashion to allow construction to commence.¹⁵ To that end, AECOM was able to issue the IFC Conduit layout on 5 May 2017 which allowed the excavation work to commence on site.¹⁶
- 1.22 In my opinion, the **70-day delay** to the late issuance of the IFC Conduit drawing (between 24 February 2017 and 5 May 2017) is attributable to both PG&E’s preferential design changes as well as the need to reroute the duct bank around the existing utility conflict. Should it be found that JH Kelly was responsible for catching the conflict earlier than they did, then they would share accountability for the delay. For purposes of this report, I assumed this to be the case and have split the delay equally between the two parties (i.e., 35 days to PG&E and 35 days to JH Kelly).
- 1.23 As it turns out, AECOM did not issue the last IFC package until 15 November 2017 – **373 days later than planned**. I have determined this date to be when full Substantial Completion of Phase 1 was achieved. In my opinion, the remaining delay was due to issues contained in PG&E’s preferential changes to the Electrical design criteria that were made after the original IFC submission.
- 1.24 I have summarized the Phase 1 delay in the table below.

¹⁵ Dean Goward Deposition page 86-87

¹⁶ See Goward Deposition Exhibit 67



Phase 1 Window	Delay Description	PG&E	JHK	AECOM	Exc. Non-Comp	Cumulative Delay
I	Changes to PG&E's Bid Design	69	0	0	0	69
II	PG&E's Preferential Change and the conflict between the duct bank and the existing utility	269	35	0	0	373
	Total	338	35	0	0	

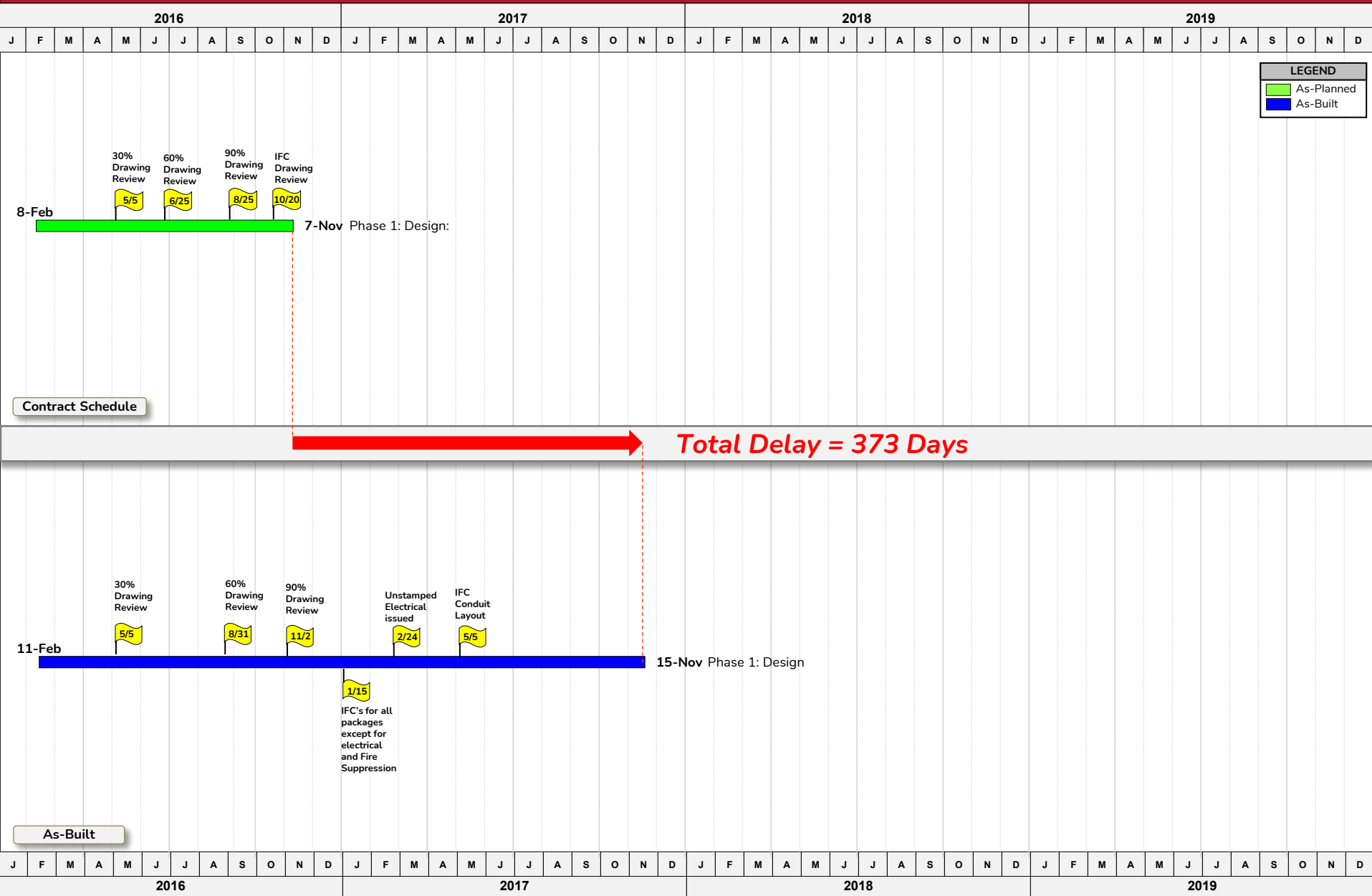
1.25 The performance during this time period is also illustrated in Figure 1-1 on the following page.

Burney Compressor Station K-2 Replacement Project

Phase 1 Summary

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Figure 1-1



Phase 2 (Construction)

- 1.26 The Construction phase of the Project (i.e., Phase 2) is detailed in Section 6 of this report and covers the period between 17 October 2016 and 2 February 2018.
- 1.27 On 6 March 2017, while PG&E continued to make the changes to the Electrical design, JH Kelly and AECOM field staff mobilized to site for Phase 2 construction work.¹⁷ The next day, on 7 March 2017, JH Kelly's earthworks subcontractor (Meyers) also mobilized to site.¹⁸ Meyers in fact commenced the excavation for the Compressor pad on 13 March 2017.
- 1.28 While JK Kelly could commence the excavation work, they could not commence the installation of the underground conduit as they were still waiting on the IFC Conduit drawings.
- 1.29 As it turns out, due to PG&E's new design as well as the discovery of a conflict between the proposed duct bank and the existing utility line, AECOM was not able to issue the IFC Conduit layout for the critical Auxiliary Building until 5 May 2017.¹⁹ With the approved drawing, JH Kelly could finally commence prefabricating the underground conduit for the Auxiliary Building.
- 1.30 According to the as-built record, the first delivery of conduit for the Auxiliary Building arrived on 1 June 2017 and was immediately installed – **64 days later than planned**.²⁰ For purposes of this report, I assumed this delay to be shared between PG&E and JH Kelly and again have split the responsibility equally (i.e., 32 days to PG&E and 32 days to JH Kelly).
- 1.31 Upon commencing the excavations for underground conduit work at the Auxiliary Building, JH Kelly took longer than planned to complete this work. Based upon my review of the Project records, it is my opinion that this extended duration was due to the discovery of boulders during excavation, the additional scope from PG&E's change in design, and JH Kelly's slower than planned progress. Due to these delays, JH Kelly did not complete the underground conduit for the Auxiliary Building until 17 July 2017 – **105 days later than planned**.²¹
- 1.32 Once the underground conduit was complete within the Auxiliary building, JH Kelly continued to make good progress in the Auxiliary building structure. However, despite this good progress in the

¹⁷ [BURNEY000081842] See March 2017 Monthly Report page 13

¹⁸ [BURNEY000081842] See March 2017 Monthly Report page 13

¹⁹ See Goward Deposition Exhibit 67

²⁰ [JHK_BURNEY_00337166-JHK_BURNEY_00337167] JH Kelly Daily Report of 1 June 2017

²¹ See As-Built Schedule Activity ID "ELEC00090" Excavate/Install UG Conduit for MCC - Auxiliary Building"



Auxiliary Building, JH Kelly was delayed in other areas of the Project, namely the duct banks. As it turns out, JH Kelly was unable to progress the electrical duct banks as planned and this work subsequently delayed the commencement of terminations in the Auxiliary Building until 16 December 2017 – **130 days later than planned.**²²

1.33 After commencing terminations, the parties agreed to shut down the Project for a period of 12 days over the holidays.

1.34 Upon returning, JH Kelly continued the termination and testing works in the Auxiliary Building. Although JH Kelly added shifts for this electrical work, they still performed this work slower than planned. As a result, they were only 30% complete with this work when the critical path shifted into Commissioning on 2 February 2018 – **150 days later than planned.**

1.35 I have summarized the Phase 2 delay in the table below. The performance during this time period is also illustrated in Figure 1-2 on the following page.

Phase 2 Window	Delay Description	PG&E	JHK	AECOM	Exc. Non-Comp	Cumulative Delay
I	PG&E's Preferential Changes to the Electrical Design and the conflict between the duct bank and the existing utility	32	32	0	0	64
II	Boulder Excavation	7	0	0	0	71
II	Increased underground conduit as a result of PG&E's preferential electrical changes	19	0	0	0	90
II	Slower than planned progress installing the underground conduit underneath the Auxiliary Building	0	15	0	0	105
III	Additional and increased duct banks as a result of PG&E's preferential electrical changes	19	0	0	0	124
III	4" Gas Line Damage	0	6	0	0	130
IV	Agreed Project Shut Down	0	0	0	12	142
IV	Slower than planned progress Pulling Wire and Performing Terminations	0	8	0	0	150
	Total	77	61	0	12	150

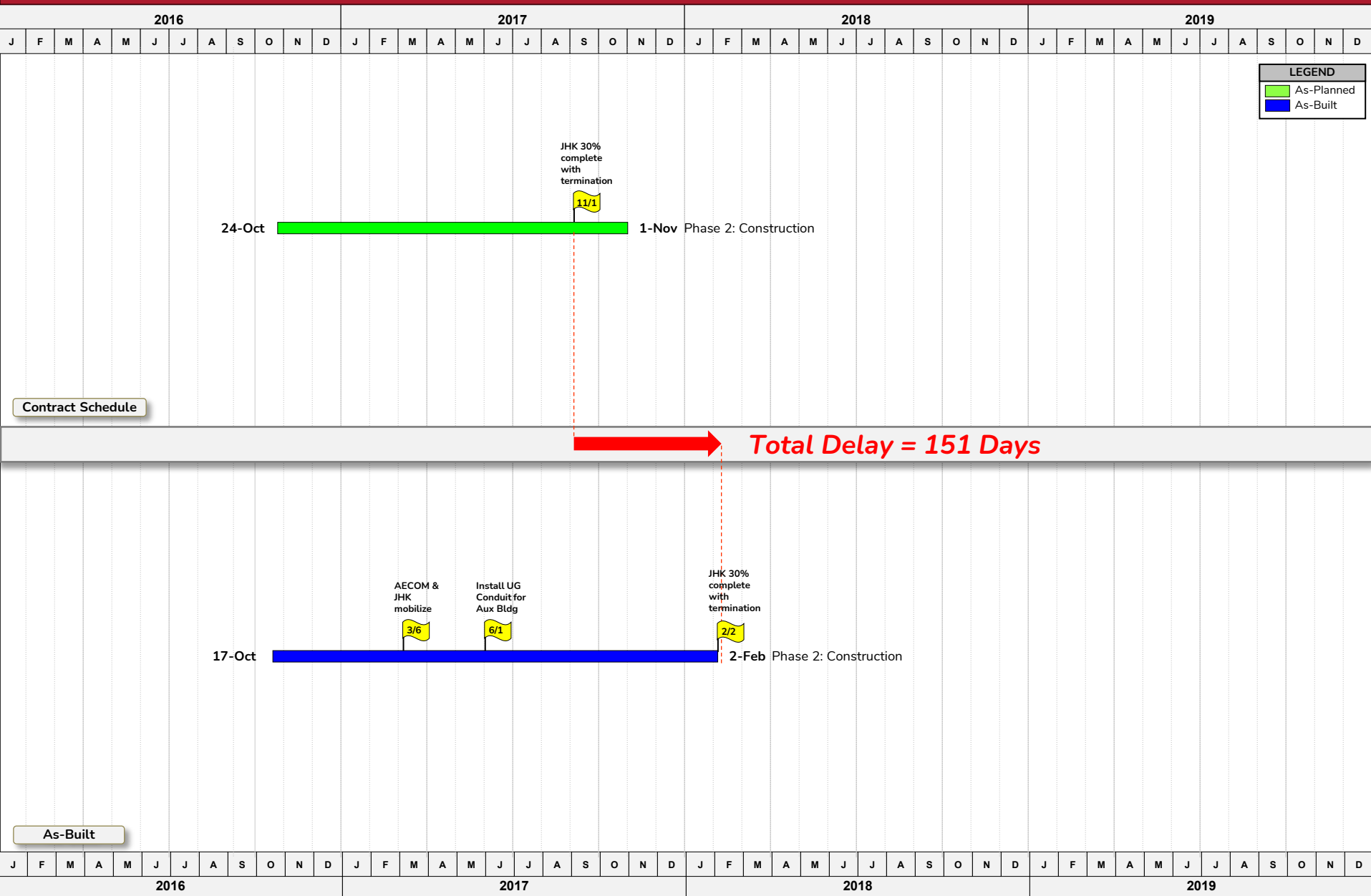
²² [JHK_BURNEY_00167348-JHK_BURNEY_00167354] See JH Kelly Daily Report of 16 December 2017

Burney Compressor Station K-2 Replacement Project

Phase 2 Summary

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Figure 1-2



Phase 3 (Commissioning)

- 1.36 Section 7 of this report details the third time period of my analysis which is for the Commissioning Phase of the Project (i.e., Phase 3) and covers the period between 2 February 2018 and 6 June 2018.
- 1.37 While JH Kelly was progressing the electrical works within the Auxiliary Building with added shifts and overtime, AECOM could not progress the main gas testing and commissioning until PG&E completed its tie-ins. These tie-ins connected the new Project piping into the existing utilities.
- 1.38 Due to a number of revisions to the Burney Tap tie-in spool, PG&E did not complete its tie-ins until 25 February 2018²³ – **10 days later than planned in the Commissioning Schedule** (25 February 2018 – 15 February 2018 = 10 days).
- 1.39 While the tie-ins were being delayed, the electrical work progressed as planned. In fact, permanent power was achieved on 27 February 2018 as planned.²⁴
- 1.40 Once the main gas tie-ins were completed, AECOM performed the Soap test to ensure that there were no gas leaks through the new connection.²⁵
- 1.41 Upon completing the Soap test, AECOM completed the main gas turnover packages which were required to begin the static Emergency Shut Down (ESD) test. The ESD system is designed to safely discharge gas in the event of an emergency.
- 1.42 The Static ESD test started on 7 April and was planned to take 1 day. However, due to problems with the new fire suppression program, the test was not completed until 12 April 2018 – **20 days later than planned in the Commissioning Schedule**.²⁶
- 1.43 Once the static ESD test was completed, AECOM planned to bring gas into the station for initial commissioning runs. However, on 13 April 2018, the ESD system recorded a fault signal from the Programmable Logic Controller (“PLC”) network which resulted in gas being discharged.²⁷ After

²³ [JHK_BURNEY_00171240-JHK_BURNEY_00171241 (Feb 19), JHK_BURNEY_00169251-JHK_BURNEY_00169252 (Feb 25)] JH Kelly Daily Report of 19 and 25 February 2018

²⁴ See As-Built Schedule Activity ID BCS.800 “Permanent Power In to the Station”

²⁵ See As-Built Schedule Activity ID BCS.910 “Soap and Pressure Test after Tie-In”

²⁶ See As-Built Schedule Activity ID COMM-70 “Perform Static ESD test”

²⁷ [AEC00785331-AEC00785334 (entire doc), AEC00785331 (B), AEC00785333 (IV)] See AECOM Commissioning Plan of the Day for 14-Apr-18 section B and IV

troubleshooting the system, a “mask” was put in place as a temporary fix to allow gas commissioning to proceed.²⁸

- 1.44 On 18 April 2018, with the “mask” mitigation measure in place, gas was brought in for the initial commissioning runs (**25 days later than planned in the Commissioning Schedule**).²⁹
- 1.45 With gas in the system, AECOM planned to perform the initial commissioning runs. However, due to a number of issues (including a problem with the generator wire harness and a damaged “witches’ hat” strainer) the 100-hour performance test was not performed until 13 May 2018 - **43 days later than planned in the Commissioning Schedule**.³⁰
- 1.46 After commencing, the 100-hour performance test was interrupted on 15 May 2018 due to a power outage.³¹ As will be discussed, it was not until 22 May 2018, that AECOM could resume the 100 hour and 10-day performance tests.³²
- 1.47 Once testing was resumed, AECOM was able to complete the performance tests of the Compressor unit and achieve Substantial Completion on 6 June 2018 (**51 days later than planned in the Commissioning Schedule**).³³
- 1.48 An additional 51 days of delay were incurred during the commissioning for Substantial Completion which was achieved on 6 June 2018 – 201 days late. This delay can be seen in the table below. I have summarized the Phase 3 delay in the table below.

²⁸ [BURNEY000377900] See AECOM April 2018 monthly report page 23

²⁹ [AEC00459957-AEC00459960 and AEC00390312-AEC00390315, AEC00459957 (4/18 sect I), AEC00390312 (4/19 sect. I)] See AECOM Commissioning Plan of the Day for 18 and 19-Apr-18 section I

³⁰ [AEC00394617-AEC00394620 (entire doc), AEC00394618 (K)] See AECOM Commissioning Plan of the Day for 14-May-18 section K

³¹ [AEC00329747-AEC00329750, AEC00329748 (K)] See AECOM Commissioning Plan of the Day for 16-May-18 section K

³² [AEC00373571-AEC00373573, AEC00373572 (sect VII)] See AECOM Commissioning Plan of the Day for 22-May-18 section VII

³³ [AEC00224561-AEC00224564] See AECOM Letter to PG&E dated 13-Jun-18



Phase 3 Window	Delay Description	PG&E	JHK	AECOM	AECOM Vendors	Exc. Non-Comp	Cumulative Delay
I	PG&E tie-ins	10	0	0	0	0	10
II	Leaks at Valves V-163 and V-167	0	0	0	1	0	11
II	Weather	0	0	0	0	3	14
III	Weather	0	0	0	0	1	15
IV	Updated Fire Suppression Program	0	0	0	5	0	20
V	ESD Hardware System Issue	0	0	0	5	0	25
VI	CAT Stand-By Generator	0	0	0	9	0	34
VI	Strainer Installation Issue	0	9	0	0	0	43
VII	CAT Stand-By Generator Regulator	0	0	9	0	0	52
VIII	Substantial Completion	0	0	-1	0	0	51
	Total	10	9	8	20	4	51

1.49 The performance during this time period is also illustrated in Figure 1-3 on the following page.

Overall Conclusion

1.50 I have summarized the responsibility for all three phases below.

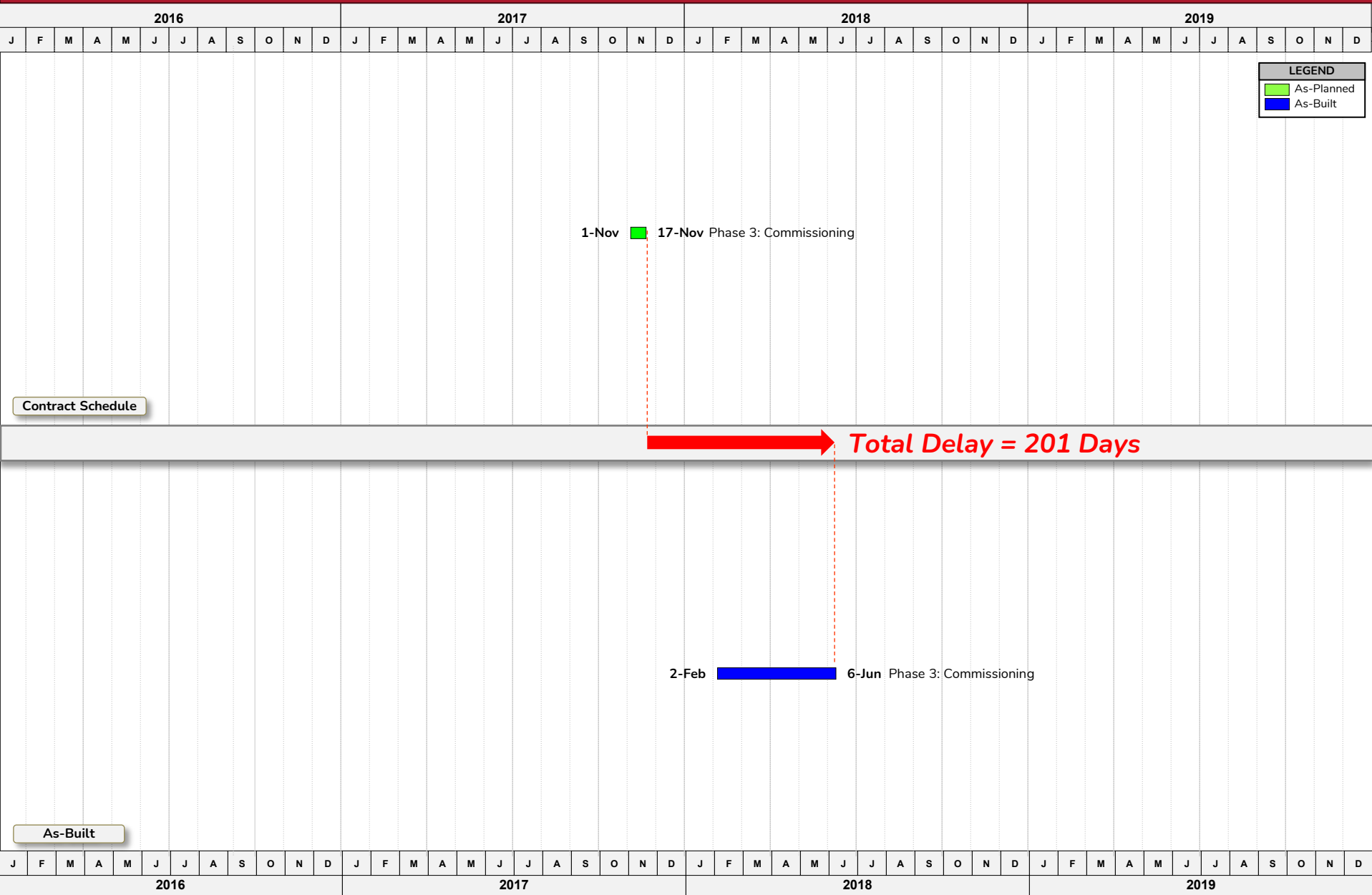
Phase	PG&E	JHK	AECOM	AECOM Vendors	Exc. Non-Comp	Cumulative Delay
Phase 1	338	35	0	0	0	373
Phase 2	77	61	0	0	12	150
Phase 3	10	9	8	20	4	51
Total	425	105	8	32	4	574

Burney Compressor Station K-2 Replacement Project

Phase 3 Summary

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Figure 1-3



2 Introduction

Author of this report

- 2.1 I, Ted Scott, am a Managing Director with Secretariat International. I have a Bachelor of Science degree in civil engineering and an M.B.A. from Virginia Tech. I have more than 25 years of experience in the engineering and construction industry and specialize in providing scheduling and project controls services as well as delay analyses, damage assessments, productivity studies, and cost estimates for clients. I have been appointed as an independent expert on numerous disputes and have considerable experience working on projects in the UK, the Middle East, the Far East, and the United States of America.
- 2.2 Full details of my qualifications and experience are included at Appendix A of this report.

Instructions

- 2.3 Secretariat International has been retained by counsel for AECOM, to independently analyze the delays that were incurred during Phase 1 and 2 of the K2 Replacement at the Burney Compressor Station.
- 2.4 This report presents the results of my analysis to date and sets forth my findings, conclusions, and opinions with respect to delay.

Documents Reviewed

- 2.5 Among the documents relied upon to form an opinion on the delay are:
- a) The Contract between PG&E and AECOM;
 - b) The Subcontract between AECOM and JH Kelly;
 - c) The Baseline Schedule dated 19 October 2016;³⁴
 - d) Various progress updates of the Baseline Schedule;³⁵
 - e) Commissioning Schedule submitted to PG&E on 2 February 2018;³⁶
 - f) AECOM Monthly Reports;

³⁴ [JHK_BURNEY_00373392-JHK_BURNEY_00373402] AECOM Baseline Schedule

³⁵ I understand that the as-built schedule "2018-06-03 - Burney Project Schedule" has not been produced but is not in dispute. I also note that previous as-built schedules and schedule updates are included in AECOM's monthly reports through April 2018 and have been produced

³⁶ [BURNEY000298833-BURNEY000298983] AECOM Commissioning Schedule

- g) Meeting Minutes;
- h) AECOM and JH Kelly Daily Reports;
- i) Drawing Submittal Logs;
- j) Procurement Logs;
- k) RFI and Change Order Logs;
- l) Delay Notices;
- m) JH Kelly's Time Impact Analysis;
- n) C2G International's Schedule and Cost Analysis; and
- o) Deposition Transcripts for:
 - Dean Goward (AECOM Electrical Lead)
 - Khalid Maslen (PG&E Electrical designer)
 - Tom Lee (JH Kelly Scheduler / PM) DRAFT; and
 - Steve Lennon (JH Kelly Project Executive) DRAFT.

Key Project Personnel

2.6 As part of this analysis, I interviewed AECOM's key project personnel including:

- a) Don Divers (Senior Vice President);
- b) Steve Petto (Project Manager / Director);
- c) Dean Goward (Electrical Lead); and
- d) Mike Belanger (Vice President).

2.7 In addition to the above, I also had discussions with the following:

- a) Mr. Steve Lewis at HKA (Technical Expert).

Structure of the Report

2.8 The remaining sections of this report are as follows:

- a) Section 3 – Project Background;
- b) Section 4 – Methodology;
- c) Section 5 – Analysis of Delay to Engineering (Phase 1);
- d) Section 6 – Analysis of Delay to Construction (Phase 2);
- e) Section 7 – Analysis of Delay to Commissioning (Phase 3); and
- f) Section 8 – Conclusions on Delay.



2.9 I have included my full curriculum vitae in Appendix A

3 Project Background

- 3.1 The Burney Compressor station is one of many in Pacific Gas and Electric Company's ("PG&E") natural gas transmission system and ensures proper gas pressurization in two of their main transmission pipelines that run from Oregon to the Bay Area along the main transmission pipeline as shown in the Figure 3-1 below.

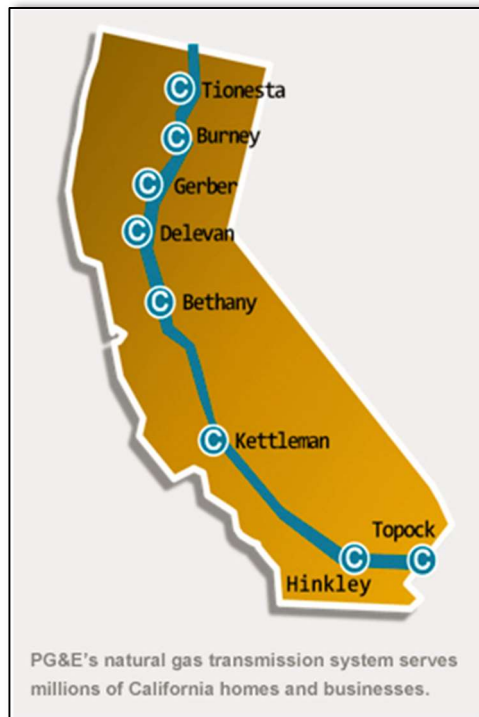


Figure 3-1: PG&E Transmission Pipeline and Compressor Stations³⁷

- 3.2 In an effort to improving the safety and reliability of their natural gas system, PG&E decided to replace the existing natural gas compressor unit at the Burney Compressor station with a new unit capable of flowing 2.2 billion cubic feet per day of natural gas.³⁸
- 3.3 On August 15, 2015, PG&E issued a Request for Proposal ("RFP") for the Burney K2 Replacement Project ("the Project").³⁹ The RFP included a 30% design set of drawings, provided by Gulf Interstates Engineering ("GIE"), and an additional RFP package which contained: a scope of work and general

³⁷ https://www.pge.com/en_US/about-pge/environment/taking-responsibility/compressor-stations/compressor-stations.page

³⁸ [BURNEY000077086-BURNEY000079027] Contract between AECOM and PG&E

³⁹ [GIEC_000000110-148 D01696450] PG&E issued a Request for Proposal August 15, 2015

conditions. These documents defined the project to be bid under an EPC (Engineer, Procure, Construct) contract delivery method.

- 3.4 In addition to the replacement of the compressor unit, the scope of work included the demolition of existing equipment and facilities as well as the installation of:

“station and unit recycle valves, station controls, unit controls, upgrades to the station electrical systems, associated switchgear, MCC, UPS, Station Battery, Automatic Transfer System, station compressed air system, new auxiliary building, air compressor replacement, standby generator replacement, and a new compressor building.”⁴⁰

- 3.5 It is worth noting that the scope of work expressly stated in at least three locations that the intent of the project was to have minimal changes to the project defined by the bid package.^{41 42}

#	Risk Category	Assumptions	Recommended Mitigation
1	Engineering	<p>AECOM acknowledges it would be our responsibility to download all required existing drawings, specifications, and other documents from PG&E's online system. Our assumption is AECOM would have unrestrained access to all such needed documents and they would be immediately available from this system.</p> <p>AECOM assumes all submittals requiring PG&E review/approval will be returned to AECOM within 10 business days or be deemed acceptable as is. We also assume a single review/approval cycle for all submittals, that is, all PG&E comments will be consolidated into a single review set and once these comments are incorporated AECOM will issue the final documents for that cycle.</p>	<p>Any PG&E-caused work delay affecting the project schedule that occurs as a result of vital existing drawings not being readily available could be justification for AECOM to seek schedule relief with respect to triggering Liquidated Damages and for extended overhead costs.</p> <p>The proposed Terms & Conditions in the RFP included no discreet time period for PG&E's review of documents. AECOM would request this condition during negotiations.</p> <p>AECOM intends to implement a collaborative work process with PG&E staff such that changes to issued documents should be minimal. However, PG&E-caused project delays could be justification for AECOM to seek schedule relief with respect to triggering Liquidated Damages and for extended overhead costs.</p>

Figure 3-2: PG&E's Bid Package⁴³

- 3.6 However, even though the above statements were made, and as will be discussed later in this report, it seems from the deposition of Dean Goward, that from the outset of the Project, PG&E knew that there were already problems with the 30% drawings.⁴⁴ Despite this knowledge, PG&E issued the RFP anyway.
- 3.7 Following several RFP clarifications in August and September 2015, AECOM submitted a bid to perform the work.⁴⁵

⁴⁰ [BURNEY000075209] Contract between AECOM and PG&E para 4.4

⁴¹ [GIEC_000000110-148 D01696450] PG&E issued a Request for Proposal August 15, 2015

⁴² Also see Dean Goward deposition page 64

⁴³ [BURNEY000295124]

⁴⁴ Dean Goward deposition page 42 - 43

⁴⁵ [BURNEY000295124] and [BURNEY000009503] AECOM's Bid submission and [GIEC_00000099] RFP Clarifications

- 3.8 As was also discussed by Mr. Goward in his deposition, AECOM based its bid on the same 30% design drawings (developed by GIE) which was included in the RFP package.⁴⁶
- 3.9 While AECOM based its bid on the above drawings, it is my understanding that they did so without knowing that the drawings were flawed.
- 3.10 In the kick-off meeting for the Project, held on 19 January 2016, AECOM was informed that PG&E would be providing them with design changes to the 30% design that was included with the RFP.⁴⁷ As discussed by Mr. Goward:

One of the most significant changes was an inadequate 30 percent bid drawings that were produced by Gulf Interstate -- when I say "inadequate," inadequate for PG&E's review -- that essentially 30 percent package which we based our bid on and all our quantities and everything else, we were informed at the kickoff meeting with PG&E that that package is invalid..⁴⁸

- 3.11 On 11 February 2016, AECOM received PG&E's mark-ups from the RFP Electrical design package.⁴⁹
- 3.12 That same day, on 11 February 2016, AECOM Technical Services ("AECOM") entered into an agreement with PG&E for the amount of \$40,510,262 to perform all engineering, procurement and construction services required to complete the Burney K2 Replacement Project ("the Project") at the Burney Compressor Station.⁵⁰
- 3.13 A layout of the existing Burney Compressor station overlaid with the new scope of work can be seen in Figure 3-3 below. The blue represents new work while the green represents existing buildings.

⁴⁶ Dean Goward deposition page 43

⁴⁷ [BURNEY000069212] BURNEY K2-KOM Minutes_2016-01-19 item 25

⁴⁸ Dean Goward deposition page 43

⁴⁹ [BURNEY000081945-BURNEY000081955 (report), BURNEY000081953 (pg. w/change items)] AECOM March 2016 Monthly Report, Change Management Items under Consideration item 11

⁵⁰ [BURNEY000075174-BURNEY000075179] FE CCP AECOM 2501335149 02112016 Final fpd3.pdf



Figure 3-3: Layout of Plant (as Bid)⁵¹

- 3.14 As will be discussed herein, PG&E requested several changes over the course of the Project such that what was actually built was very different than what was bid. It is my understanding that many of these changes stemmed from the initial problems that PG&E knew it had with the 30% drawings.
- 3.15 The Figure 3-4 below represents the layout of the plant as-built (also where blue represents new work while the green represents existing buildings).

⁵¹ [GIEC_000001840-1853 D01696439] Attachment 3_GIEC_000000110-148 D01696450 Page 37/39

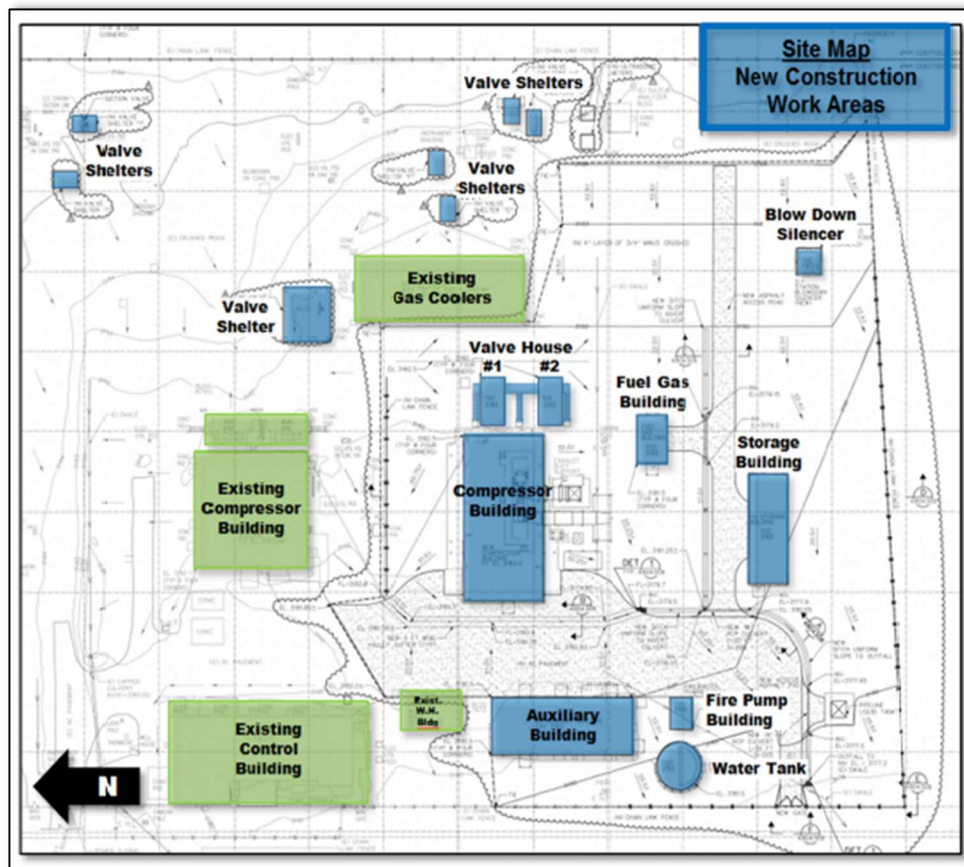


Figure 3-4: Final IFC Layout⁵²

3.16 According to the Contract, the Project was divided into 2 Phases of work as follows:

- a) Phase 1 work was to be completed by November 2016 and included the procurement of long lead items and the development of engineering and construction documents (subject to review at the 30%, 60%, 90% and Issued for Construction ("IFC") design completion); and
- b) Phase 2 work was to be completed by 1 December 2017, including all field construction, on-site construction management, training, and supervision of commissioning required to turn over the Project to PG&E.⁵³ It should be noted that both the procurement and the design (from Phase 1) were needed to support the construction schedule set out in Phase 2.

3.17 Further milestones were detailed in Section 4.1 of the Special Conditions of the Contract as follows:

⁵² [JHK_BURNEY_00373208-JHK_BURNEY_00373266] JH Kelly February 2018 Delay claim figure at Page 9/59

⁵³ [BURNEY000075212] Contract between AECOM and PG&E para 5.4

Major Milestone	Phase 1	Phase 2	Notes
Select Compressor Supplier	July 30, 2015		PG&E Action
Award EPC Contract	December 1, 2015		PG&E Action
NTP	February 5, 2016		
Begin Phase I	February 8, 2016		
Procure Compressor Package	March 25, 2016		EPC Contractor perform for PG&E
30% Design Review	May 5, 2016		
60% Design Review	June 23, 2016		
90% Design review	August 25, 2016		
IFC drawings Complete	October 20, 2016		
Engineering Completion	November 7, 2016		IFCs and Specifications Approved
Long Lead Material Purchase	Feb thru Nov 2016		
Begin Phase II		October 24, 2016	
Construction Mobilization		October 24, 2016	Mobilization at Burney Site
Long Lead Materials at Site		TBD	Compressor Package Delivery
Preliminary Construction		October - November 2016	Site investigation and site preparation
Project Construction at Site		March – November 2017	
Station outage for Tie-in and Test		August to Nov 17,	PG&E Station Clearance
Tie-In L-400 and L-401		August 1, 2017	End PG&E Clearance
Commissioning and Testing		November 1, 2017	
Substantial Completion		November 17, 2017	Final Turnover to PG&E
Project Complete and Demob		December 1, 2017	

Figure 3-5: Contract Milestone Schedule⁵⁴

- 3.18 In the event that the above milestones were not met, Contract section 5.7.1 specified that liquidated damages applied to the Phase 1 and 2 completion milestones as follows:

“5.7.1 Late Completion Liquidated Damages

5.7.1.1 PG&E’s construction and commercial operation schedule is based upon the required Phase One and Phase Two completion dates provided in 4.1 above. Contractor’s failure to meet either of these dates will result in added project costs and other damages to PG&E. It will be extremely difficult for Contractor and PG&E to identify the amounts of increased or additional costs attributable to Contractor’s failure to meet the required completion dates. Therefore, should Contractor fail to meet one or all of the specified completion dates,

⁵⁴ [BURNEY000075208-BURNEY000075209] Contract between AECOM and PG&E para 4.1

Contractor and PG&E agree that Contractor or shall pay PG&E liquidated damages per day of delay, provided the total amount of late completion payments for liquidated damages shall not exceed \$1,500,000.00, as follows:

5.7.1.2 Phase One: Contractor shall achieve Completion of Phase One Work by the Engineering Completion Date set forth in Section 4.1. If Phase One completion is not achieved by the Engineering Completion Date, Contractor shall pay to PG&E as liquidated damages and not as a penalty an amount equal to \$10,000 per day for each day by which Engineering Completion is not achieved.

5.7.1.3 Phase Two: Contractor shall achieve Substantial Completion for Phase Two Work by the Date set forth in Section 4.1. If Phase Two completion is not achieved by the Phase Two Substantial Completion Date, Contractor shall pay to PG&E as liquidated damages and not as a penalty an amount equal to \$20,000 per day for each day by which Phase Two Commissioning Completion not achieved.⁵⁵

- 3.19 As will be discussed in detail herein, due to the problems with the 30% drawings as well as preferential changes made by PG&E, AECOM did not achieve partial Substantial Completion of Phase 1 until 16 January 2017 and full completion until 15 November 2017 – ***373 calendar days later than planned.***
- 3.20 It is my understanding that PG&E granted a time extension for Phase 1 until 16 January 2017 (when partial Substantial Completion was achieved) and is not seeking Liquidated Damages for any delays to Phase 1 thereafter.
- 3.21 On or around 21 October 2016, as AECOM was at the 90% design submittal of Phase 1 Engineering of the Project, AECOM entered into a subcontract with JH Kelly for the Phase 2 Construction of the Project at a lump sum price of \$14,341,281.00.⁵⁶
- 3.22 JH Kelly mobilized to the site on or around 1 March 2017 and began to commence work.⁵⁷ Due to a number of issues that will be discussed herein, Substantial Completion for the Project was not achieved until 6 June 2018 – ***201 calendar days later than contractually required.***

⁵⁵ [BURNEY000075208-BURNEY000075209] AECOM Contract with PG&E, Attachment 3, Specific Conditions section 5.7

⁵⁶ [AEC01036572 (this doc was produced natively due to size, so it only has 1 bates number)] JH Kelly CONTRACT 60482831-SC-001_2016-10-21_Fully Executed.pdf

⁵⁷ See As-Built Schedule Activity ID: BCS.220 "Remobilize - Phase II"



3.23 Due to the delays to Phase 1 and Phase 2 noted above, I have been retained to independently identify and quantify the cause(s) of delay each phase. While the assessment of responsibility for the delay is ultimately for the Trier of Fact to decide, I have attempted to assist based on my understanding of the various issues. The following sections of this report sets out my analysis in this regard.

4 Methodology

4.1 As there are a number of recognized methodologies for analysing delay, I reviewed the Construction Contract as a first step in determining which one to use on this Project. In this regard, the most relevant clauses seem to be Sub-Clauses 6.9, 6.10 and 7.1 of Attachment 1 to the Contract and Sub-Clause 4.8 of Attachment 2 to the Contract.

4.2 Based on my review of these Sub-Clauses, none of them specify a methodology to be used in analysing delay stating only that the:

“Contractor shall submit to PG&E a written statement supporting the claim as soon as practicable but not more than 30 days after the action or decision giving rise to the claim.”⁵⁸

4.3 Given that the Contract is silent in this regard, the methodology adopted, in my opinion, should be based on industry standards and best practice. To that end, there are generally three favoured methodologies in the Industry for performing delay analyses including:

- a) Time Impact Analysis (“TIA”);
- b) Time Slice Windows Analysis; and
- c) As-Planned vs. As-Built Analysis.

4.4 The TIA approach is a prospective analysis which attempts to estimate the projected delay by modelling individual delay events into the schedule that was in place at the time the event occurred. In my view, this approach is useful when the project is on-going and the full matrix of facts relevant to delay and progress are not available until after the event. That being said, because the TIA is a modelled approach and at best can only approximate reality, its results are hypothetical. TIA’s also require fully robust and regularly updated schedules which were not developed on this Project. As an example, the Project schedules were not updated to include the new design criteria (i.e., added underground Duct Banks) until late July 2017 and additionally there were no updates for the key time period between September and November 2017. It is therefore my opinion that this method is not recommended on this Project.

4.5 The Time Slice Windows Analysis is a retrospective analysis and, in my view, would normally be a suitable approach for analyzing delay on a project such as this one. However, like the TIA, this

⁵⁸ [BURNEY000075133] General Conditions of the Contract (Attachment 2) Section 4.8

approach also requires fully robust and regularly updated schedules. As mentioned previously, the schedules submitted on this project do not meet these criteria. It is therefore my opinion that this method is also not recommended on this Project.

- 4.6 The As-Planned vs. As-Built Analysis is too a retrospective analysis. However, unlike the other two approaches, this methodology can be performed with less-than-ideal schedule data (i.e., a fully functional baseline is not necessary). The analyst can simply use the baseline schedule as it is found, and subjective modifications are not required. As a result, the methodology focuses more directly on the as-built critical path, so the trier of fact can evaluate all the facts and opinions that lead to that path. The focus can remain on what actually happened, as opposed to modelled events predicting what might have happened (i.e., like a theoretical or prospective analysis). Due to these factors, the As-Planned vs. As-Built Analysis is my recommended approach.
- 4.7 In describing the “As-Planned versus As-Built Windows” methodology, an industry leading publication in the field of construction law, Keating on Construction Contracts, states:

“In this method the contemporaneous or actual critical path is established not by a dynamic analysis using programming software but rather by common-sense and practical analysis of the available facts. The windows tend to be defined by significant milestones or events that occurred within the project.

A major advantage of the windows analysis methods is that they attempt to analyse the causes of delay contemporaneously and with a firm base in the as-built record of what actually happened on site within a particular window.”⁵⁹

- 4.8 Furthermore, the widely referenced Society of Construction Law (or “SCL”) Delay and Disruption Protocol (2nd Edition) defines the “As-Planned versus As-Built Windows” methodology as follows:⁶⁰

“The as-planned versus as-built windows analysis method is the second of the ‘windows’ analysis methods. As distinct from a time slice analysis, it is less reliant on programming software and usually applied when there is concern over the validity or reasonableness of the baseline programme and/or contemporaneously updated programmes and/or where there are too few contemporaneously updated programme. In this method, the duration of the works is broken down into windows. Those windows are framed by revised contemporaneous programmes, contemporaneously updated

⁵⁹ Keating on Construction Contracts 10th Edition

⁶⁰ SCL Delay Protocol 2nd Edition Paragraph 11.6

programmes, milestones or significant events. The analyst determines the contemporaneous or actual critical path in each window by a common-sense and practical analysis of the available facts. As this task does not substantially rely on programming software, it is important that the analyst sets out the rationale and reasoning by which criticality has been determined. The incidence and extent of critical delay in each window is then determined by comparing key dates along the contemporaneous or actual critical path against corresponding planned dates in the baseline programme. Thereafter, the analyst investigates the project records to determine what delay events might have caused the identified critical delay. The critical delay incurred and the mitigation or acceleration achieved in each window is accumulated to identify critical delay over the duration of the works.”

- 4.9 For background, the ‘critical path’, the central aspect of any delay analysis methodology, is defined by the SCL as follows:⁶¹

“Critical Path: The sequence of activities through a project network from start to finish, the sum of whose durations determines the overall project duration. There may be more than one critical path depending on workflow logic. A delay to the progress of an activity on the critical path will, without acceleration or re-sequencing, cause the overall project duration to be extended, and is therefore referred to as a ‘critical delay’.”

- 4.10 As noted above, the “As-Planned versus As-Built Windows” methodology is less reliant on programming (scheduling) software than the “Time Impact Analysis” methodology, and more grounded in the facts as established by the Project record. Typically, analyses that rely heavily on specialist scheduling software (such as Primavera) and periodic schedule updates take a more prospective or forward-looking view, many times ignoring what, as a matter of fact, impacted project completion. Prospective-type analyses primarily use theoretical inputs that cannot deliver results which reliably reflect the as-built sequence and are subject to manipulation by the user. At best, these types of analyses can only predict the potential impact that a delay event may have on the critical path, as opposed to whether the Project was delayed as a result of a claimed event.
- 4.11 In my view, the “As-Planned versus As-Built Windows” methodology tied to the Project record is the best option for analyzing the critical delays to the Project. My analysis starts with the actual effect

⁶¹ SCL Delay Protocol 2nd Edition Appendix A Definitions and glossary

(i.e., the amount of delay incurred) and then seeks to determine the cause(s) of that delay. Furthermore, my approach and overall analysis:

- a) allows for a conclusion on the actual cause(s) of delay,
- b) is not overly complex or unwieldy,
- c) takes into account shifts in the critical path and is capable of addressing concurrent delay, mitigation and/or acceleration.

4.12 In the sections that follow, I've identified the most appropriate baseline schedule and as-built contemporaneous information to use as the basis for the "As-Planned versus As-Built Windows" methodology approach.

The As-Planned vs. As-Built Analysis

4.13 This method compares the baseline schedule (the "as-planned") with the work as it was actually completed (the "as-built"). The as-built can be compiled using contemporaneous records, actual dates recorded in the schedules, or a combination of these and other similar sources. By comparing the baseline with the as-built, the variances (i.e., delays) from the planned performance can be readily identified.

4.14 This method makes it possible to perform a like-for-like comparison to assess either the differences between individual activities (or groups of activities) or the differences between the project completion dates. Once the delays are identified, the causes of each delay can also be determined through a review of the contemporaneous records. The resultant delays can then be utilized to facilitate the quantification of time-related damages.

4.15 The As-Planned vs. As-Built Analysis requires a stepped approach, as follows:

- a) First, gain an understanding of the Contractor's planned sequence of the construction.
- b) Second, the actual critical path is identified by an application of common sense and a practical analysis of the available facts. The critical path is identified by stepping through the project chronologically and applying the facts and the events (including management's contemporaneous decision making) as they occur rather than looking at the project from a purely retrospective basis.
- c) Third, establish the incidence and extent of delay by comparing the actual critical path against the corresponding activities and milestones in the Baseline Schedule. The delay analysis should be broken down into manageable and meaningful periods or 'windows' of time (based on significant milestones or project events) in which to consider the critical path and the effects of delay events.

- 4.16 By way of helpful guidance, the following is an excerpt related to the As-Planned versus As-Built methodology contained in Keating on Construction Contracts:

“In this method the contemporaneous or actual critical path is established not by a dynamic analysis using programming software but rather by common-sense and practical analysis of the available facts. The Windows tend to be defined by significant milestones or events that occurred within the project.

A major advantage of the windows analysis methods is that they attempt to analyse the causes of delay contemporaneously and with a firm base in the as-built record of what actually happened on site within a particular window.”⁶²

- 4.17 Despite the advantages of using the “As-Planned vs. As-Built” method, there are several points to contemplate prior to selecting this approach for analyzing delay including that this method:
- a) Obligates the analyst to deduce the as-built critical path, which could be perceived as subjective;
 - b) Requires the as-built schedule to be created, which is a labor-intensive endeavor; and
 - c) Is sometimes considered to be a “global” approach.
 - d) In consideration of the above, it is my position that the As-Planned vs. As-Built methodology is still the best tool to quantify delay on this Project because:
 - e) The As-Planned vs. As-Built methodology is transparent (i.e., underlying decisions cannot be obscured or hidden). Therefore, any subjectivity can easily be evaluated by the Tribunal; and
 - f) The ‘global’ approach is minimized by the selection of windows which help to discreetly identify delay events and their impacts.

- 4.18 For ease of discussion, I have broken my analysis into three distinct phases as follows:

- a) Analysis of Delay to Design (Phase 1);
- b) Analysis of Delay to Construction (Phase 2); and
- c) Analysis of Delay to Commissioning (Phase 3).

The Baseline Schedules

- 4.19 For each of the above phases, I use a different baseline schedule to measure delay as set out below.

⁶² Keating on Construction Contract, Stephen Furst QC BA and Honorable Sir Vivian Ramsey MA, 9th Edition p 296

- 4.20 For my analysis of Phase 1 (Engineering), I have used the milestones set out in the Contract (as shown previously in Figure 3-5 and herein referred to as the Contract Milestone Schedule). As can be seen from Figure 3-5, design of the Project was divided into interim submittals for the 30%, 60%, 90% and 100% IFC design reviews. My analysis of Phase 1 is detailed in Section 5 of this report.
- 4.21 As will be discussed in my analysis of Phase 2, the initial benchmark from which I measure delay is the 19 October 2016 Project schedule. This schedule was submitted to PG&E along with the 90% design on 19 October 2016 and appears to be the first schedule that included detailed JH Kelly's construction activities. This schedule also met the Phase 2 Construction milestones outlined in Section 4.1 of the Special Conditions of the Contract. I have therefore used this schedule as the Baseline Schedule for the construction portion of the work (as detailed in Section 6 of this report).
- 4.22 As is typical with projects of this type, as the Project was nearing Mechanical Completion in late 2017, a "Commissioning Schedule" was developed. This schedule was submitted to PG&E on 2 February 2018. I have therefore used this schedule as the Baseline Schedule for the commissioning portion of the work. (i.e., the period after 2 February 2018 as detailed in Section 7 of this report).

The Actual Critical Path

- 4.23 In my opinion, the key element in the "As-Planned vs. As-Built" Analysis is determining the actual critical path. This is typically done by:
- a) From the fully populated as-built schedule, identifying the critical path by applying common sense and construction management and planning experience in an objective and practical manner, supported where necessary by discrete and careful calculation using scheduling analysis.
 - b) Confirming and cross checking these results by reviewing the planned logic and evaluating any likely changes based on contemporaneous evidence.
- 4.24 The as-built data that I have relied on has primarily come from the AECOM's schedule updates, Project monthly weekly and daily reports (for both JH Kelly and AECOM).

5 Analysis of Delay to Design (Phase 1)

5.1 As mentioned previously, Phase 1 included the Engineering design of the Project. According to the Contract, the Engineering design was subject to interim review periods 30%, 60%, 90% and Issued for Construction (“IFC”) design completion.

5.2 To assist in the discussion and analysis of delays, I have broken the total period of performance into 2-time windows as can be seen in the table below. These time windows were established based on revisions to the planned sequence of Phase 1 engineering, key events and shifts in the critical path.

Window	Description	Time Frame
I	Partial Completion of Phase 1	11 Feb 2016 to 16 Jan 2017
II	Full Completion of Phase 1	16 Jan 2017 to 15 Nov 2017

5.3 I discuss the above Windows in detail below and for each one I consider:

- a) The start and finish date of that window and the critical delay at the start and finish date of each window;
- b) The critical path during each window;
- c) The performance of the works during each period; and
- d) The primary cause(s) of delay during each window.

Phase 1 Window I – Partial Completion of Phase 1 (11 Feb 2016 to 15 Jan 2017)

Introduction

- 5.4 From the outset of the Project and even during the Project Kick-off meeting, PG&E knew that the initial 30% design included within the RFP for the Project would need to be revised. As will be discussed below, these known changes to the design (the majority of which were related to the electrical work) ultimately delayed the completion of the Phase 1 design such that partial Completion of Phase 1 was not granted until 15 January 2017.⁶³
- 5.5 In terms of critical delay in this time window:
- a) The beginning of this time window, 11 February 2016, is the date of the Contract;
 - b) According to the Contract Milestone schedule, Phase 1 (i.e., Engineering Completion) was to be achieved by 7 November 2016;⁶⁴
 - c) Due to PGE's design changes, AECOM did not achieve the partial Substantial Completion (or all scopes of work except for Electrical) until 15 January 2017 – **69 calendar days later than planned** (15 January 2017 – 7 November 2016 = 69 days); and
 - d) The Project therefore was delayed **69 calendar days in this time period**.
- 5.6 From my review of the contemporaneous documents and the progress achieved during this time, the principal cause of critical delay in this window appears to have been PG&E's change in design and decision to revise the existing 30% design included in the RFP.

Changes to PG&E's Bid Design

- 5.7 In the kick-off meeting for the Project, held on 19 January 2016, AECOM was informed that PG&E would be providing them with comments on the 30% design that was included with the RFP (as can be seen in the excerpt of the meeting minutes below).⁶⁵

⁶³ [AEC00058072-AEC00058100] See AECOM Change Order 4

⁶⁴ [BURNEY000075208-BURNEY000075209] Contract Milestone Schedule

⁶⁵ [BURNEY000069212] BURNEY K2-KOM Minutes_2016-01-19 item 25



  GT Project Delivery System				
MEETING MINUTES				
22	AECOM to arrange conference call with JH Kelly to discuss plans for PG&E's shop inspection, NDE, welder qualifications, etc.	Steve	TBD	After contract formation between AECOM and JHK
23	PG&E will clear trees in the area south of the existing yard for the new facilities.	Bill	June 2016	AECOM will advise AECOM noise study staff that trees will be removed.
24	AECOM to search for Gulf Interstate Eng'g DGN files in PG&E Records.	Brad Wolf	TBD	
25	PG&E Electrical to provide AECOM with their comments on the GIE 30% package.	Khaled	TBD	TBD = When SharePoint is up and running.

Figure 5-1: Item 25 of Kick-Off Meeting Minutes⁶⁶

- 5.8 On 11 February 2016, and as can be seen below, AECOM received PG&E's mark-ups from the RFP Electrical design package.⁶⁷ I understand from Mr. Lewis, that these comments included (among other things) major changes to the Single Line Diagram (SLD) and questions regarding the Electrical Load Study.⁶⁸

⁶⁶ [BURNEY000069212] BURNEY K2-KOM Minutes_2016-01-19 item 25

⁶⁷ [BURNEY000081945-BURNEY000081955 (report), BURNEY000081953 (pg. w/change items)] AECOM March 2016 Monthly Report, Change Management Items under Consideration item 11

⁶⁸ [BURNEY00308248-9 and BURNEY000313242-54]

Figure 5-2: Markups to 30% GIE Design⁶⁹

- 5.9 After receiving the comments, and a week later than planned, PG&E issued the Notice to Proceed (“NTP”) to AECOM on 12 February 2016 thereby commencing Phase 1 of the Project. Note that this was 7 days later than contemplated by the Contract (12 February 2016 – 5 February 2016 = 7 days).
- 5.10 As noted previously, the design of the Project was divided into interim submittals for the 30%, 60%, 90% and 100% IFC design reviews. AECOM’s progress in completing these design submittals is set out below.

30% Design

- 5.11 After the kick-off meeting, and as discussed by Mr. Goward, it became clear that the project had not been scoped properly in the RFP and that the design relied upon in the Bid was going to be changed as set out below.⁷⁰

“The kickoff meeting was in the morning and we received the Gulf Interstate drawing package with the red cross that went through the

⁶⁹ [BURNEY000308248_PGEProductionVOL003] E-mail from Mr Malsen dated 16 February 2016

⁷⁰ Dean Goward deposition page 57

single line diagram that day. It was at that point that we knew that this project was not scoped properly.”⁷¹

- 5.12 On 21 March 2016, during an electrical scoping meeting, PG&E acknowledged that there were errors in the GIE Electrical Load Study and that AECOM was to review the equipment list and perform a new Electrical Load Study.⁷² On that same day, Khaled Maslen of PG&E, sent additional GIE drawing mark-ups as well as additional GIE load study mark-ups.⁷³ As discussed by Mr. Goward:

“There was an electrical load calculation that GIE had prepared and there was a number of comments on the load calculation which also meant that the loading calculations had to be completely redone as well. Not only that, there was actually missing information on Gulf Interstate's drawings. It did not represent the full extent of the scope at all. For example, there is -- there's an existing building at Burney that remains and still there today. The Gulf Interstate drawings only showed one panel being required inside that building and one feeder going to that building, but in reality we had to do a lot of rewiring and repowering existing loads in the existing administration building. I think it was the control building is the right term, existing control building, that was just not shown on Gulf's drawings.”⁷⁴

- 5.13 In accordance with the Contract Milestone Schedule, AECOM and PG&E conducted the 30% design review on 5 May 2016. However, as evidenced in the meeting minutes for the 30% design review, several additional design changes were discussed in the meeting as detailed below:

- a) Expanding the size of the Auxiliary Building by 15 feet;⁷⁵
- b) Arc resistant design was added to the MCCs and switchgear.⁷⁶
- c) A New Fire Suppression System by COSCO;⁷⁷ and
- d) New wiring for the new MCC.⁷⁸

- 5.14 As discussed by Mr. Goward in his deposition (excerpted below), even though AECOM submitted what it thought were the 30% design drawings on 5 May 2016, they essentially had to start again:

⁷¹ Dean Goward deposition page 57 -58

⁷² [AEC00784773] BURNEY K2 REPLACEMENT MEETING MINUTES 03-21_DRAFT Issue Item 1

⁷³ [AEC00137509-22]

⁷⁴ Dean Goward deposition page 57

⁷⁵ [AEC00998802 and AEC00998804] BURNEY K2 Replacement Design Review Meeting Minutes_2016-05-05 item 9, 17 and 42

⁷⁶ [AEC00998802] BURNEY K2 Replacement Design Review Meeting Minutes_2016-05-05 item 9

⁷⁷ [AEC00998801 and AEC00998802] BURNEY K2 Replacement Design Review Meeting Minutes_2016-05-05 item 7 and 10

⁷⁸ [AEC00998803] BURNEY K2 Replacement Design Review Meeting Minutes_2016-05-05 item 31

*"So we went to the 30 percent -- we submitted the 30 percent design, had the meeting with PG&E on the 5th of May, 2016, and we found out during that meeting that Khaled no longer wanted the single bus arrangement, so he went back to a main-tie-main. Okay, let's start again. So I thought we had a 30 percent design, but it turned out we didn't because Khaled didn't want the single bus anymore, he changed his mind."*⁷⁹

5.15 In its May 2016 monthly report, AECOM recorded that several other changes were under consideration by PG&E. As a result, the 60% design review would need to be rescheduled from 23 June 2016 (as shown below).⁸⁰



  GT Project Delivery System	
MONTHLY REPORT – May 2016	
Work Accomplished This Month / Planned for Next Month	
Work Accomplished This Month	Work Planned for Next Month
This Month's Meetings Held Bi-Weekly Status Meetings <ul style="list-style-type: none"> • 5/10 (WebEx only) • 5/24 (San Ramon) Other Meetings <ul style="list-style-type: none"> • 5/05 30% Design Review (San Ramon) • 5/09 Quarterly Meeting with PG&E Management - Meeting with project stakeholders from PG&E and AECOM (San Ramon); covered Solar issue and PG&E 2016 funding challenge • 5/10 Meeting with Design Drafting to discuss 30% Design Review comments (San Ramon) • 5/16 Follow up meeting with Design Drafting to discuss conflicting drafting requirements (San Ramon) • 5/25-26 Geotechnical field work at the Burney site was completed. 	Next Month's Meetings Planned Bi-Weekly Status Meetings <ul style="list-style-type: none"> • 6/07 (WebEx only) • 6/21 (San Ramon) Other Meetings <ul style="list-style-type: none"> • 6/01 and 6/02 PHA San Ramon • 6/01 Meeting with PG&E Contracts management to discuss use of Unifier • 6/03 Site Visits to Gerber and Delevan • 6/23 60% Design Review Meeting POSTPONED; to be rescheduled

Figure 5-3: AECOM May 2016 Monthly Report showing 60% design review rescheduled⁸¹

60% Design

5.16 In the months following the 30% design review meeting, I understand that PG&E (via its Engineer Mr. Malsen) requested several more changes which triggered a significant redesign effort by AECOM.⁸² These changes are outlined below:

- On 21 July 2016 AECOM and PG&E held a meeting to finalize the Electrical design concept in which it was decided by PG&E that "Smart MCC's," added SEL relays to equipment, and an "Off-Skid Generator Control Panel" were to be used on the Project;⁸³ and
- On 5 August 2016, AECOM received a revised equipment list from PG&E (which I understand from Mr. Lewis is a part of conceptual design and should have been finalized prior to PG&E issuing the RFP).⁸⁴

⁷⁹ Dean Goward deposition page 66

⁸⁰ [BURNEY000081921-BURNEY000081934] AECOM May 2016 Monthly Report

⁸¹ [BURNEY000081921-BURNEY000081934] AECOM May 2016 Monthly Report

⁸² Dean Goward deposition page 43

⁸³ [BURNEY000127757 and BURNEY000127759] BURNEY K2_Electrical_Minutes_2016-07-21item 5 and 22

⁸⁴ [BURNEY000104047-BURNEY000104071] AECOM August 2016 Monthly Report

- 5.17 As discussed by Mr. Goward, even during the 60% design period, PG&E had not finalized its electrical requirements which should have been included in the RFP:

"So that period between May and August was a lot of confusion and not very clear direction from PG&E at all. And ultimately, it boiled down to us making a request of PG&E at one of those meetings to please, please send us a drawing as to what you need, the same drawing that should have been in the RFP."⁸⁵

- 5.18 In a quarterly meeting with PG&E management on 10 August 2016, it was acknowledged that the design was approximately 2 months delayed and the principal challenges were:

- a) the late contract for the Solar Turbine / Compressor;
- b) the Electrical design still being in conceptual phase; and
- c) the PG&E delays in generating change orders.⁸⁶

- 5.19 As discussed by Mr. Goward, by August 2016, AECOM began preparing change orders to submit to PG&E:

"Because once we got that one-line diagram in August, we realized there was a lot of change on this project and put together a series of change orders. I don't know exactly what their numbers were, but -- when I say "numbers," the submittal number.

And PG&E had a lot of trouble, a lot of trouble approving those change orders, despite the fact that in the RFP, they said Hey, look, minimal changes to the GIE drawings and we'll be on board with any changes that occur to this package as a result. That was the RFP. But then in reality, we had a lot of trouble. We didn't get a change order approval, I believe, until maybe December of that year."⁸⁷

- 5.20 On 5 August 2016, AECOM notified PG&E that the design would be delayed due to equipment ordering issues which were caused by PG&E's failure to issue change orders to cover the costs of the revised MCC and switchgear equipment as well as other Electrical design changes enacted by Khaled Malsen.⁸⁸

- 5.21 As discussed by Mr. Goward:

⁸⁵ Dean Goward deposition page 68

⁸⁶ [AEC00805482-AEC00805490] 8-10-16 Burney Quarterly Update draft

⁸⁷ Dean Goward deposition page 77

⁸⁸ [AEC00955948-56] 8-5-16 email with attached RFI0025 (AEC00955948-56.)

*"What was also very frustrating about that period was that Khaled was bypassing us and talking directly to our suppliers. So I was getting phone calls from SEL and Eaton saying what is going on and what is the scope on this project. And I didn't even know those communications were happening. I found out through our supplier that Khaled was talking to SEL and trying to -- I don't know, I guess he was trying to reduce the overall cost."*⁸⁹

- 5.22 On 31 August 2016, due to the above changes, AECOM finally submitted the 60% design review - **69 days later than planned** (31 August 2016 - 23 June 2016 = 69 days).⁹⁰
- 5.23 As evidenced in the 60% design review meeting minutes, several additional design changes were discussed including:
- a) Enlarging the electrical and Control Room within the Auxiliary Building;⁹¹
 - b) Adding a Hazardous Material (Storage) Building;⁹²
 - c) Performing a Fire Suppression Study for the Compressor and Auxiliary Building;
 - d) Changes to the UPS System (i.e., Redundant UPS);⁹³
 - e) Minimize above ground conduit;⁹⁴
 - f) Changing the wire tagging system on the drawings for the project;⁹⁵ and
 - g) Eliminating below ground access to wire pull boxes and replacing with above ground pull boxes.⁹⁶
- 5.24 When the 60% design comments were received, it is my understanding from Mr. Goward that PG&E had made no further major changes to the electrical system via the 60% drawing review (and I understand from Mr. Lewis that the 60% design package is typically the last opportunity to make any major changes). However, as will be discussed below, PG&E subsequently continued to make major changes to AECOM's design.

⁸⁹ Dean Goward deposition page 78

⁹⁰ [AEC00720828-AEC00720834] 8-31-16_BURNEY_K2_MINUTES_FINAL

⁹¹ [AEC00720830] 8-31-16_BURNEY_K2_MINUTES_FINAL item 20

⁹² [AEC00720830 and AEC00720832] 8-31-16_BURNEY_K2_MINUTES_FINAL item 26 and 45 (although it is noted in the Consolidated discipline chronology matrix that this was requested in June 2016)

⁹³ [AEC00720830] 8-31-16_BURNEY_K2_MINUTES_FINAL item 21

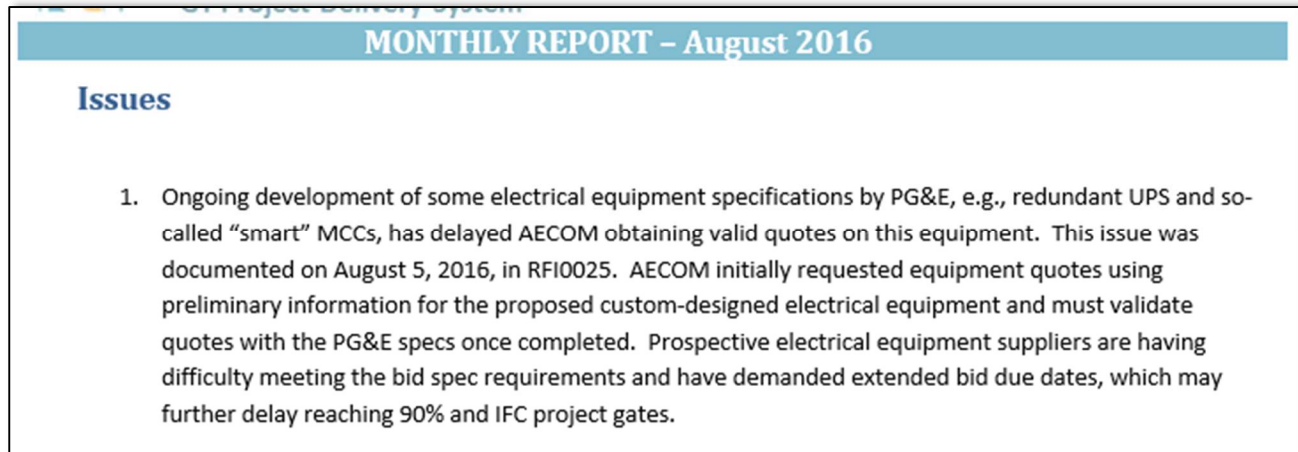
⁹⁴ [AEC00720833] 8-31-16_BURNEY_K2_MINUTES_FINAL item 49

⁹⁵ [AEC00720832] 8-31-16_BURNEY_K2_MINUTES_FINAL item 42

⁹⁶ [AEC00720831] 8-31-16_BURNEY_K2_MINUTES_FINAL item 34

90% Design

- 5.25 As summarized in the August 2016 Monthly report (excerpted below), AECOM reported that the ongoing electrical equipment changes were impacting AECOM's procurement and could delay the 90% and IFC design stages as excerpted below.⁹⁷

**Figure 5-4: Excerpt of August 2016 Monthly Report⁹⁸**

- 5.26 While AECOM continued to develop the 90% drawings, the first Contract Change Order was executed on 19 September 2016 which included \$1.3M of new work (including changes to fittings and valves, revisions to design drafting standards, and a redundant UPS) as well as \$2.4M in credits for the removal of the new gas cooler from the project scope.⁹⁹
- 5.27 Despite these design changes, AECOM submitted the 90% design documents on 19 October 2016 and the 90% design review meeting was held on 2 November 2016 – **69 days later than contemplated in the Contract planned** (2 November 2016 – 25 August 2016 = 69 days).¹⁰⁰ In other words, again, AECOM did not lose any further time between the 60% and 90% drawing submissions
- 5.28 However, as can be seen in the excerpt below, although the 90% design package was submitted, it was issued with holds due to continued late vendor data.¹⁰¹

⁹⁷ [BURNEY000104020-BURNEY000104035] AECOM September 2016 Monthly Report

⁹⁸ [BURNEY000104047-BURNEY000104071] AECOM August 2016 Monthly Report

⁹⁹ [AEC00209455-AEC00209522] AECOM Contract Change Order 1

¹⁰⁰ See As-Built Schedule Activity ID: BCS.165 "90% Design Review"

¹⁰¹ [BURNEY000120434-BURNEY000120455] AECOM October 2016 Monthly Report

MONTHLY REPORT –October 2016	
Issues	
<p>1. Electrical equipment bids were received on September 20th. After multiple meetings with the prospective suppliers, PG&E authorized AECOM to submit an RFI (and subsequent PCO) for smart MCCs in lieu of traditional MCCs, a PF correction capacitor, and high resistance grounds based on a tentative award to Eaton. The 90% package was issued with HOLDS placed where electrical equipment vendor prints are needed to complete. Upon PG&E authorization AECOM will issue the purchase order.</p>	

Figure 5-5: Excerpt of October 2016 Monthly Report¹⁰²**100% IFC Design**

- 5.29 After the 90% design review meeting, AECOM was able to continue to progress the design of most of the various engineering disciplines (i.e., Civil, Structural, Mechanical) with the exception of the Electrical design. This package was noted as being dependent on PG&E decisions regarding major electrical equipment.¹⁰³ Once these decisions were made, AECOM stated that they would need 10 weeks to finalize the Electrical package as can be seen below.

#	Decision	Decision Date	Notes
1	AECOM to submit "Unstamped IFC Drawings" to PG&E by Dec.15. Submittal will include all drawings except Electrical and Fire Protection Drawings. PG&E to return comments within a two week time frame.	11/22/16	Electrical package 10 weeks after PG&E decision is made allowing AECOM to purchase major electrical equipment.

Figure 5-6: Excerpt from 22 November 2016 Bi-Weekly Meeting¹⁰⁴

- 5.30 It is worth noting that, on 1 December 2016, during a pre-mobilization meeting between PG&E and AECOM, PG&E (i.e., Ron Whyte) expressed that Construction may not be ready to move forward into Phase 2 as seen in the excerpt of the meeting minutes below.¹⁰⁵

¹⁰² [BURNEY000120434-BURNEY000120455] AECOM October 2016 Monthly Report

¹⁰³ [BURNEY000121170] 2016-11-22_BURNEY_K2_MEETING_MINUTES

¹⁰⁴ [BURNEY000121170] 2016-11-22_BURNEY_K2_MEETING_MINUTES

¹⁰⁵ [BURNEY000121214-BURNEY000121216] 2016-12-01_BURNEY_pre-mob_minutes

2	Ron voiced his impression that he did not yet have a “warm and fuzzy feeling” regarding the project’s readiness to go forward with Construction in late Feb/early March. He related how some of the formal requirements were relaxed for the Phase 1 construction given the limited scope of work (grading, fencing, etc.), e.g., no project-specific QA/QC plan was provided, but PG&E wouldn’t have that latitude for Phase 2.	12/01/16
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Figure 5-7: Excerpt from 1 December 2016 Pre-Mobilization Meeting¹⁰⁶

- 5.31 On 14 December 2016, PG&E authorized AECOM to issue the purchase order for the major electrical equipment (i.e., Smart MCC’s, Switchgear etc.).¹⁰⁷ With the finalization of equipment selection, AECOM was finally able to get the necessary vendor information, details, and drawings required to progress the Electrical design and thus the 10-week timeframe discussed above started.¹⁰⁸
- 5.32 As AECOM continued to work on the Electrical design, they submitted the 100% stamped IFC drawings for all other design packages (except for Electrical and Fire Suppression). These drawings were approved on 15 January 2017.¹⁰⁹

¹⁰⁶ [BURNEY000121214-BURNEY000121216] 2016-12-01_BURNEY_pre-mob_minutes

¹⁰⁷ [BURNEY000081794] PO for the MCCs, Switchgear, and Switchboards

¹⁰⁸ Dean Goward deposition page 50

¹⁰⁹ [BURNEY000081791-BURNEY000081810] AECOM January 2017 Monthly Report

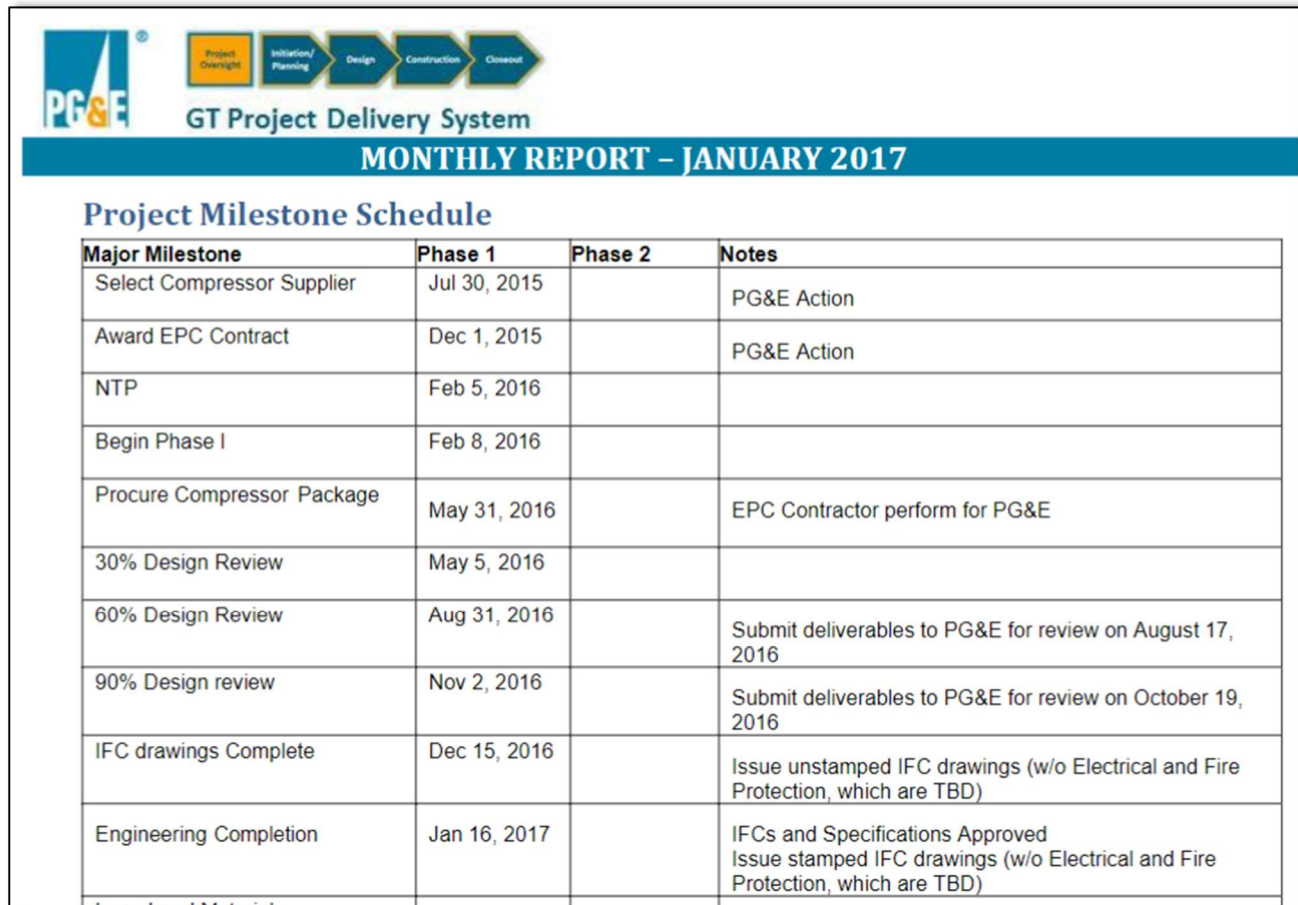


Figure 5-8: January 2017 Monthly Report for Approved IFC Design¹¹⁰

- 5.33 Due to the above submission, AECOM's Phase 1 (i.e., Engineering Completion Milestone) was apparently deemed by PG&E to be achieved on 15 January 2017 (albeit, without the electrical package).
- 5.34 Given the planned completion for Phase 1 in the Contract (i.e., 7 November 2017), partial Substantial Completion for Phase 1 was achieved **69 days later than planned** (15 January 2017 – 7 November 2016 = 69 days).¹¹¹
- 5.35 It is noted that on 17 January 2017, the day after the partial Substantial Completion for Phase 1 was deemed to have been achieved, Change Order 2 was executed between AECOM and PG&E which included:
- a) An increase to the Contract price by \$1.25M;

¹¹⁰ [BURNEY000081791-BURNEY000081810] AECOM January 2017 Monthly Report

¹¹¹ See As-Built Schedule Activity ID: BCS.180 "Engineering Completion"



- b) Changes to the major Electrical Equipment (i.e., Smart MCC's and SEL Switchgear); and
- c) Increased size of the Auxiliary Building.¹¹²

Conclusion

- 5.36 The table below summarizes the actual delay incurred in Window I. It is my opinion that this delay was caused by PG&E's change in design, many of which stemmed from the issues contained in the 30% Design Drawings.
- 5.37 The performance during this time period is also illustrated in Figure 5-9 on the following page.

Phase 1 Window	Cause of Delay	Delay in Window (Days)
I	Changes to PG&E's Bid Design (PG&E)	69
Total		69

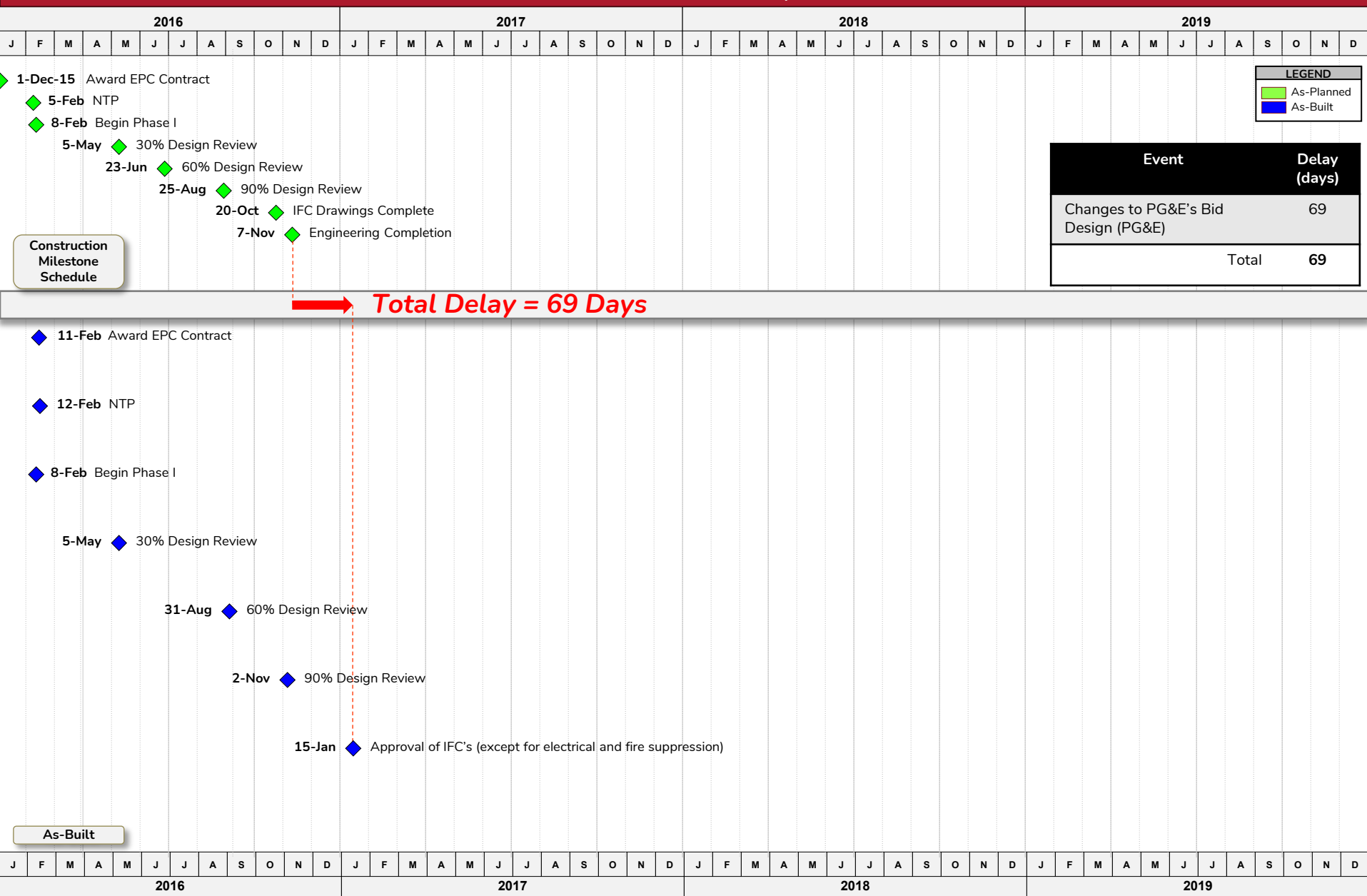
¹¹² [AEC00054296-AEC00054339] AECOM Change Order 2

Burney Compressor Station K-2 Replacement Project

Phase I Window I - Partial Completion of Phase I

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Figure 5-9



Phase 1 Window II – Full Completion of Phase 1 (16 Jan 2017 to 15 Nov 2017)

- 5.38 On 24 February 2017, a little over a month after receiving partial Substantial Completion for Phase 1, AECOM issued a draft IFC Electrical package for review. However, during the review of these drawings, PG&E decided it wanted to make further revisions to the design, including the addition of new design criteria.¹¹³ It is my understanding that these changes caused AECOM to redesign, and redraw the Project.¹¹⁴
- 5.39 In an effort to mitigate the on-going delay to the Electrical design (and the knock-on impact it had to the construction work), AECOM issued the drawings in a piecemeal fashion such that the final IFC drawing was not issued until 15 November 2017.^{115 116}
- 5.40 In my opinion, this decision by AECOM to issue the drawings in a piecemeal fashion ultimately helped the project, in that it allowed JH Kelly to continue its field operations and reduced what otherwise would have been far more significant delays to the Construction schedule had they waited for the full package to be received.

Introduction

- 5.41 In terms of critical delay in this time window:
- a) At the beginning of this time window, Phase 1 was 69 days behind schedule;
 - b) According to the Contract Milestone Schedule, Phase 1 (i.e., Engineering Completion) was to be achieved by 7 November 2016;¹¹⁷
 - c) Due to preferential changes made by PG&E, AECOM did not achieve full Substantial Completion until 15 November 2017 – **373 calendar days later than planned** (15 November 2017 – 7 November 2016 = 373 days); and
 - d) The Project therefore was delayed 304 calendar days in this time period (373 days – 69 days = 304 days).
- 5.42 From my review of the contemporaneous documents and the progress achieved during this time, the principal cause of critical delay in this window appears to have been PG&E's preferential changes to

¹¹³ It is noted that, this new design criteria has been discussed by Mr Goward as a "resiliency requirement". See also [AEC00571355-6]

¹¹⁴ See Dean Goward Deposition page 82

¹¹⁵ [JHK_BURNEY_00158253-JHK_BURNEY_00158254] See Summary Log of E&I IFC Drawings at exhibit 5 of JH Kelly electrical TIA

¹¹⁶ [AEC00681353-AEC00681357] AECOM letter dated 15 November 2017

¹¹⁷ [BURNEY000075208-BURNEY000075209] Contract Milestone Schedule

the Electrical design as well as the discovery of a conflict between the proposed duct bank and an existing utility line.

PG&E's Preferential Changes to the Electrical Design

- 5.43 As shown in AECOM's January 2017 monthly report, the IFC Electrical design was still incomplete at that time and was not anticipated to be submitted until 24 February 2017 (as shown in the excerpt below).¹¹⁸

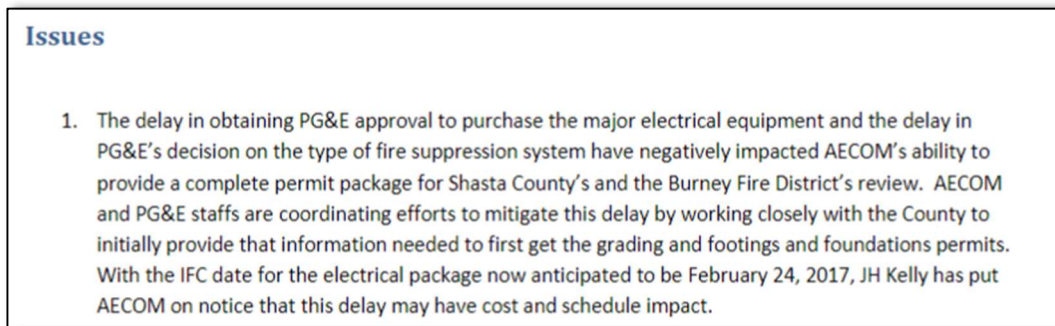


Figure 5-10: Excerpt from 1 December 2016 Pre-Mobilization Meeting¹¹⁹

- 5.44 As it turns out, AECOM did issue an un-stamped electrical package on 24 February 2017. I note that this package included an IFC conduit plan for review as shown below.¹²⁰

¹¹⁸ [BURNEY000081791-BURNEY000081810] AECOM January 2017 Monthly Report

¹¹⁹ [BURNEY000081791-BURNEY000081810] AECOM January 2017 Monthly Report

¹²⁰ See Dean Goward deposition Exhibit 66

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- 5.47 To expedite the implementation of PG&E's changes, Mr. Maslen located himself in AECOM's Oakland offices between March 2017 and May 2017.¹²⁴ While he was there, he changed the basis of design for the wire and conduit which required a complete redesign and redrawing of the Project to an entirely new design criteria.¹²⁵
- 5.48 I understand from discussions with Mr. Lewis, that this new design criteria is a fundamental change which should have been included in the RFP project requirements was not due to code requirements. In other words, it was a preferential change that PG&E wanted to make. I also understand it had the following implications:
- a) Shifting the majority of the above ground conduit into duct banks below ground;
 - b) Changing large conduit with multiple conductors to small conduit with single conductors;
 - c) Changing the ambient temperature at which the wire was to perform;
 - d) Changing conduit spacing requirements;
 - e) both changes "c" and "d" caused an increase in quantity for wire, conduit, and duct bank excavation;
 - f) Increasing the depth of conduit below the Auxiliary Building; and
 - g) Eliminating the below grade wire access points and replacing those with above ground stainless steel pull boxes for the underground duct bank.
- 5.49 With regard to re-routing the conduit to avoid the 34" gas line, once it was discovered, AECOM provided 3 options as follows:
- a) run duct bank trench deeper;
 - b) run duct bank above ground in a bridge structure to avoid gas line; and
 - c) re-route the duct bank to avoid that area completely.¹²⁶
- 5.50 Mr. Lewis has noted that the conflict between the new duct bank location and the existing underground gas lines were shown on AECOM's 30%, 60% and 90% drawings. Despite this, and my understanding that JH Kelly was responsible for providing constructability reviews of AECOM's incremental design drawings, JH Kelly failed to notify AECOM of construction concerns with these

¹²⁴ See Goward Deposition page 85

¹²⁵ See Goward Deposition page 85

¹²⁶ See Goward Deposition page 98

conflicts until February 2017.¹²⁷ As a result, the redesign of the duct bank in the area of the cooler facility had a larger impact on the issuance of the IFC drawings than it otherwise should have.

5.51 As discussed by Mr. Goward, the third and least preferable option was chosen by PG&E which resulted in rerouting the duct to the eastern portion of the site, which significantly increased the length of duct bank.¹²⁸ I further understand from discussions with Mr. Lewis that he has analyzed the routing of the duct bank with respect to this existing utility and determined that the option selected was indeed a preferential change by PG&E, as either of the less impactful solutions would have been possible from an engineering standpoint.

5.52 In an effort to mitigate the on-going delay to the Electrical design (and the knock-on impact it had to the construction work), AECOM issued the IFC drawings for the Project in a piecemeal fashion.¹²⁹

5.53 As discussed by Mr. Goward:

*"In a perfect world, you would have an IFC package ready for stamping and releasing to construction the way that other projects I've been a lead engineer on work. Not in this case. Because we're under such a schedule crunch because the construction schedule never moved out, we actually found ourselves in a situation where we're issuing engineering product to the field in a piecemeal fashion based on the schedule. So I believe the compressor building was maybe one of the first items that were to be built at Burney. So we focused our energy on that. Okay, Khaled, what do you want in the compressor building, work with him, and once we got it to a point where he was okay with it, the package was reviewed internally, ensured the calculations and the right level of quality was on the package, stamped it, issued it to JH Kelly for construction."*¹³⁰

5.54 Critically, on 5 May 2017, AECOM was able to issue the IFC Conduit layout as can be seen below which allowed the excavation work at the Auxiliary Building to commence on site.¹³¹

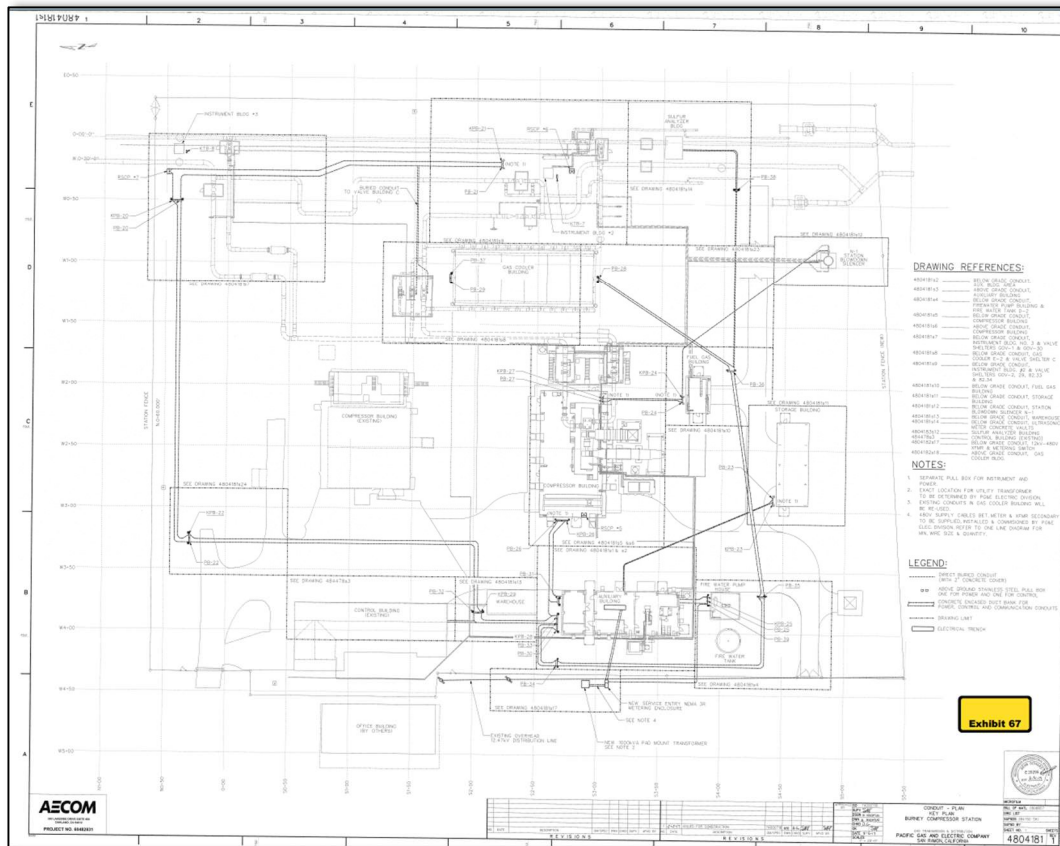
¹²⁷ [BURNEY000075209] Contract between AECOM and PG&E Art. 1.4.1, 2.2.1, 2.17. See also JHK0050723-70 Pg 3, item 7 – lists and Pg 15.

¹²⁸ See Goward Deposition page 99-100

¹²⁹ See Dean Goward Deposition page 86-87

¹³⁰ Dean Goward Deposition page 86-87

¹³¹ See Goward Deposition Exhibit 67

Figure 5-12: 5 May 2017 Stamped IFC Drawing ¹³²

5.55 As can be seen from Figure 5-13 below, the approved below grade Electrical design was fundamentally differently from what AECOM has submitted at the 90% Design Stage (which were the drawings from which JH Kelly based its bid).¹³³

¹³² Dean Goward deposition Exhibit 67¹³³ [JHK_BURNEY_00383758 (Graphic 2), JHK_BURNEY_00383791 (Ex. 6)]

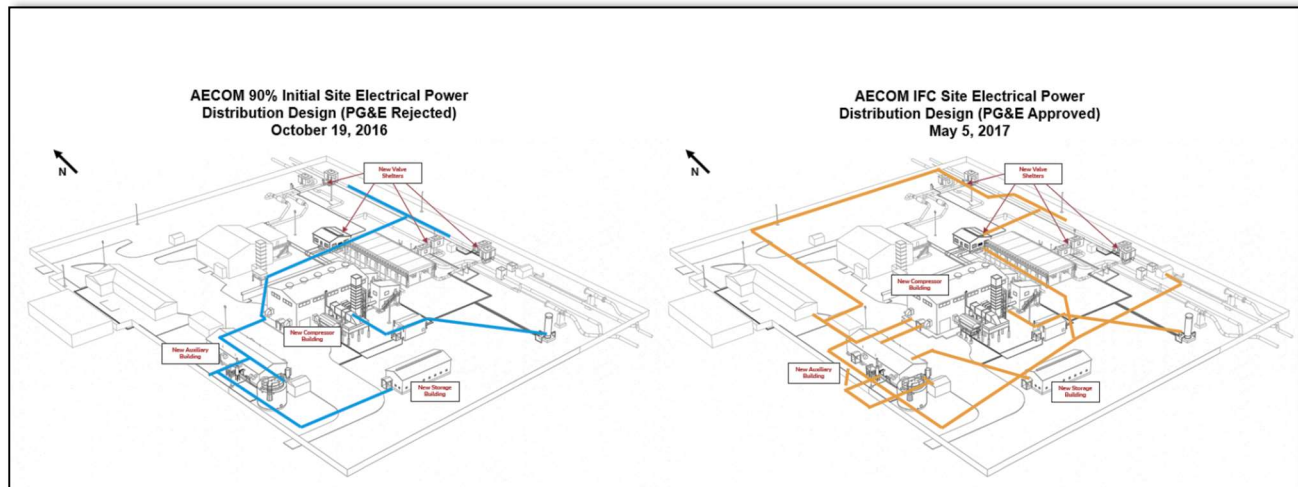


Figure 5-13: Pre IFC vs IFC routing for Duct Banks¹³⁴

5.56 I understand from discussions with Mr. Lewis, that these significant changes were attributable to PG&E's change in design criteria (i.e., preferential changes and nice to have additions).

5.57 I also understand from discussions with Mr. Lewis that the change in duct bank routing along the Northern portion of the site in the 5 May 2017 design (the left side of the drawing to the right) was due PG&E's refusal to allow the duct bank to be routed below or above the gas lines).

5.58 A list of the other piecemeal electrical IFC drawings after 5 May 2017 is outlined below:¹³⁵

- a) 18 May 2017 – one lines, panel schedules, above grade conduit, lighting, site underground lighting conduit, lightning protection, grounding, installation details, wiring diagrams for lighting and outlets;
- b) 26 May 2017 – lighting drawings, updated duct bank sections, site grounding;¹³⁶
- c) 12 June 2017 - BOM for conduit;¹³⁷
- d) 20 June 2017 – underground conduit;¹³⁸
- e) 30 July 2017 - underground conduit;¹³⁹
- f) 11 September 2017 – above ground conduit;¹⁴⁰

¹³⁴ I note that this illustrative figure has been developed with annotations based on [JHK_BURNEY_00383758 (Graphic 2), JHK_BURNEY_00383791 (Ex. 6)]

¹³⁵ [JHK_BURNEY_00158253-JHK_BURNEY_00158254] See Summary Log of E&I IFC Drawings at exhibit 5 of JH Kelly electrical TIA

¹³⁶ [AEC00223541-4]

¹³⁷ [AEC00083204]

¹³⁸ [AEC00927875-81]

¹³⁹ [AEC674180559]

¹⁴⁰ [JHK_Burner_00057407-9]

- g) 22 September 2017 - above ground conduit;¹⁴¹
- h) 17 October 2017 - underground conduit;¹⁴² and
- i) 15 November 2017 – grounding and lighting details.¹⁴³

5.59 Based on the above, I have determined the end of Phase 1 to be 15 November 2017 coinciding with the issuance of the last IFC drawing.

5.60 As noted in AECOM's letter to JH Kelly (shown below), the Electrical design was also deemed contemporaneously to be complete on 15 November 2017.

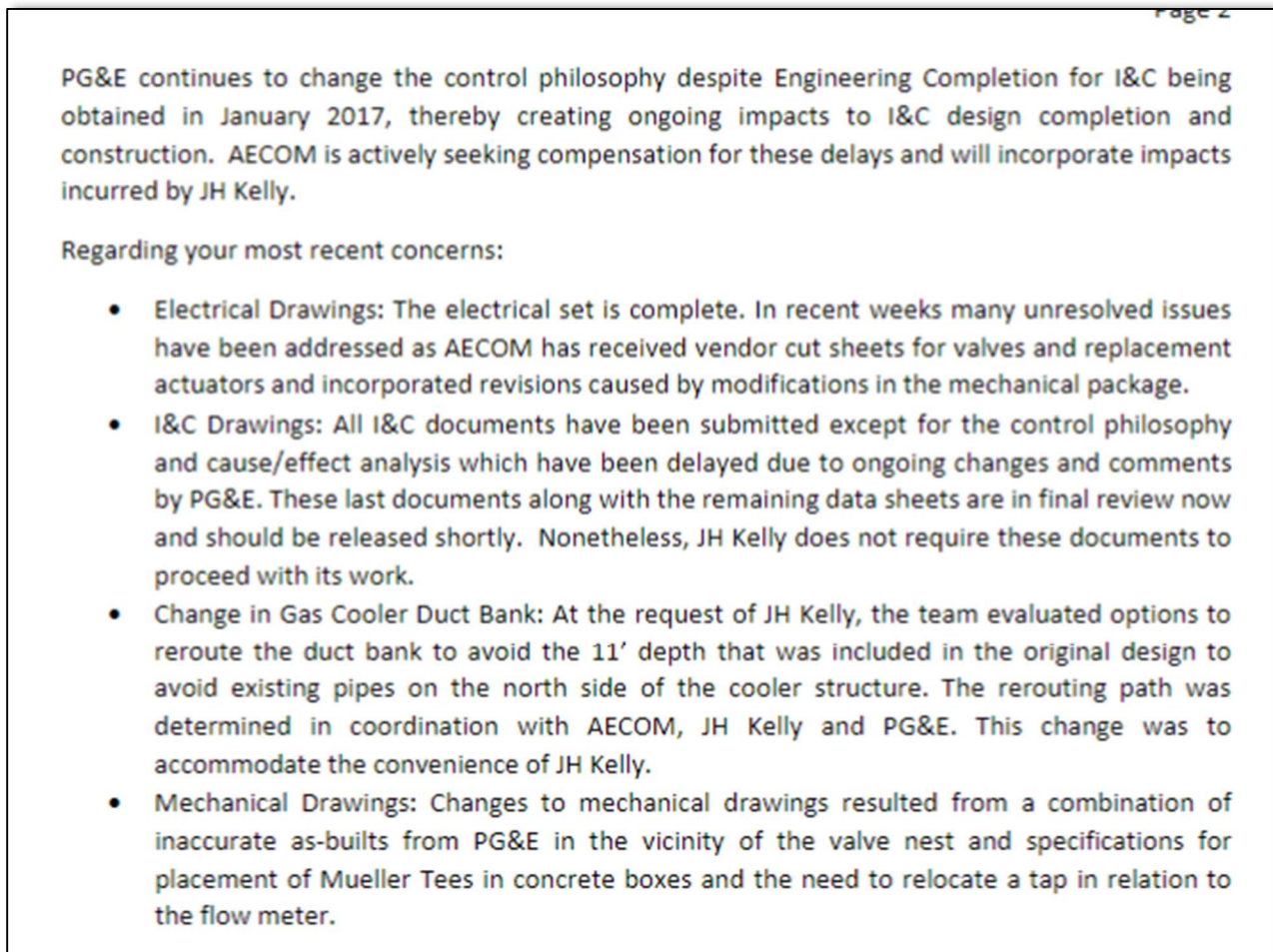


Figure 5-14: AECOM Letter regarding delays as of 15 November 2017¹⁴⁴

¹⁴¹ [JHK_BURNEY_00158253-JHK_BURNEY_00158254] See Summary Log of E&I IFC Drawings at exhibit 5 of JH Kelly electrical TIA

¹⁴² [JHK_BURNEY_00158253-JHK_BURNEY_00158254] See Summary Log of E&I IFC Drawings at exhibit 5 of JH Kelly electrical TIA

¹⁴³ [JHK_BURNEY_00158253-JHK_BURNEY_00158254] See Summary Log of E&I IFC Drawings at exhibit 5 of JH Kelly electrical TIA

¹⁴⁴ [AEC00681353-AEC00681357] AECOM letter dated 15 November 2017

5.61 It is worth noting that throughout 2017, PG&E continued to issue and approve change orders for the changes made during Phase 1 including:

- a) Change Order 3 on 21 February 2017 for \$814,150;
- b) Change Order 4 on 30 March 2017 for \$918,072;
- c) Change Order 5 on 8 June 2017 for \$627,790;
- d) Change Order 6 on 11 December 2017 for \$638,852 (which was disputed by AECOM); and
- e) Change Order 7 for \$4,142,761 (which is disputed).

5.62 I also note that Change Order 4, in addition to adding scope, granted an extension of time to the Phase 1 design to match the achievement of partial Substantial Completion (i.e., until 15 January 2017) as can be seen below.

Detailed Description: This is a no-cost contract change. Reference RFI00019. New contract dates for design deliverables due to delays with purchase order with Solar Turbines: 60% design review changed to August 31, 2016 90% design review changed to November 2, 2016 IFC changed to December 1, 2016 Engineering Complete changed to January 15, 2017 No change in construction completion date.

Figure 5-15: Excerpt of Change Order 4¹⁴⁵

Conclusion

5.63 The table below summarizes the actual delay incurred in Window II. While the majority of this delay was caused by PG&E's preferential changes to the Electrical design, it is my opinion that **70 days of this delay** (between 5 May 2017 - 24 February 2017 = 70 days) was also due to the need to reroute the duct bank around the existing utility conflict. Should it be found that JH Kelly was responsible for catching the conflict earlier than they did, then they would share accountability for the delay. For purposes of this report, I assumed this to be the case. However, based on the records that have been made available to me, I have not been able to determine exactly when the change to routing of the duct bank was made. I have therefore split the delay equally between PG&E and JH Kelly (i.e., 35 days to PG&E and 35 days to JH Kelly) as it seems that approximately half of the added duct bank is related to the rerouting around the existing conflict.

¹⁴⁵ [AEC00058072-AEC00058100] AECOM Contract Change Order 4

5.64 The Contractor's performance during this time period is also illustrated in Figure 5-16 on the following page.

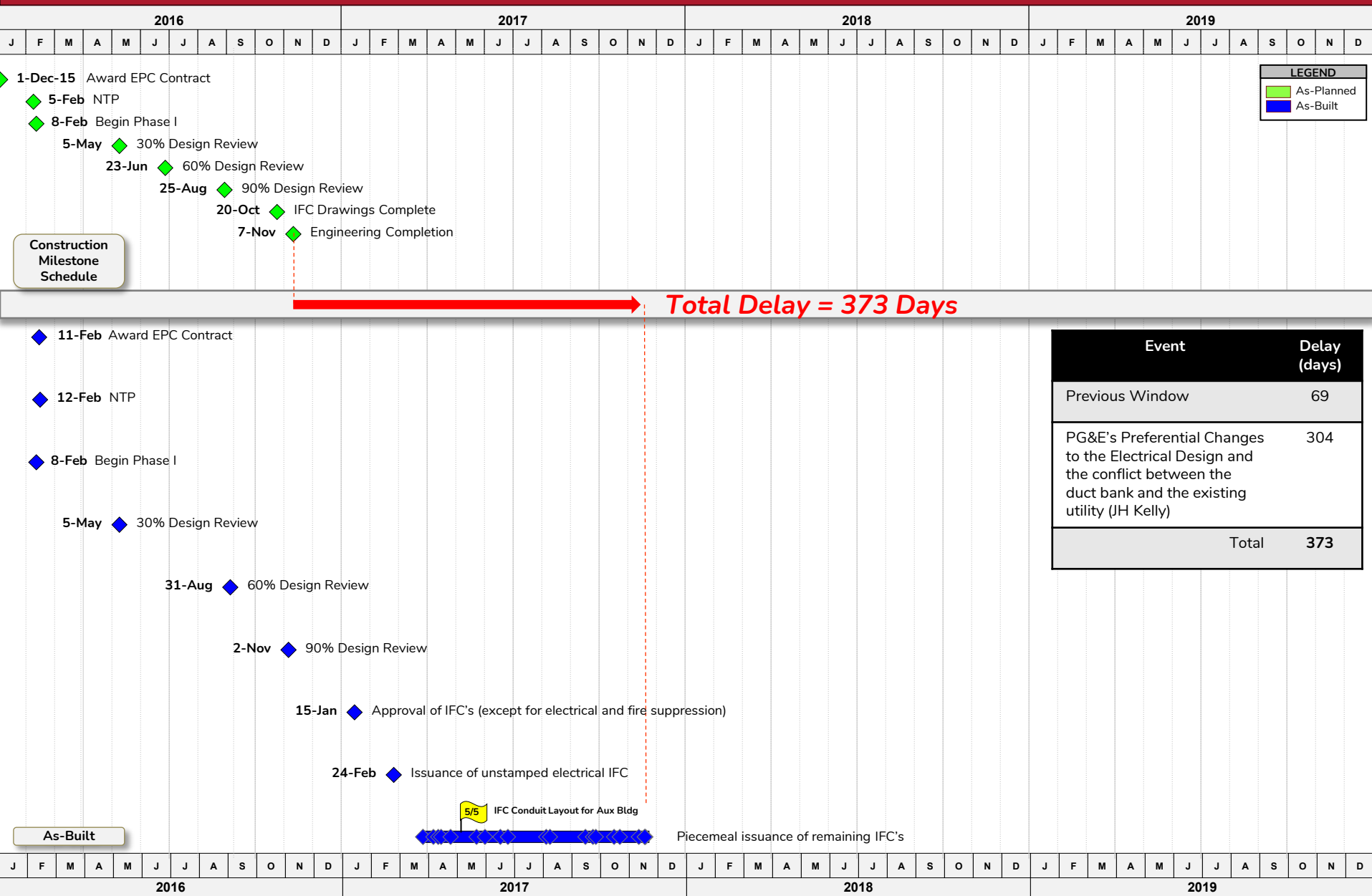
Phase 1 Window	Cause of Delay	Delay in Window (Days)
	Delay from Previous Window	69
II	PG&E's Preferential Changes to the Electrical Design (PG&E) and the conflict between the duct bank and the existing utility (JH Kelly)	304
	Total	379

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Figure 5-16 Phase I Window II - Full Completion of Phase I

Figure 5-16





Conclusions of Analysis of Delay to Phase 1 Design

- 5.65 As discussed above, Phase 1 completion was not achieved until 15 November 2017 - **373 days later than planned**. In my opinion, the first 69 days of this delay (through the issuance of all IFC packages on 15 January 2017 except for Electrical and Fire Suppression) was due to PG&E's change in design, many of which stemmed from the issues contained in the 30% Design Drawings.
- 5.66 I have also determined that the 70-day delay between 24 February 2017 (the issuance of the unstamped Electrical design) and 5 May 2017 (the issuance of the IFC Conduit layout for the Auxiliary Building) was due to both PG&E's new design criteria as well as the need to reroute the duct bank around the existing utility conflict. Should it be found that JH Kelly was responsible for catching the conflict earlier than they did, then they would share accountability for the delay. For purposes of this report, I assumed this to be the case and have split the delay 35 days to PG&E and 35 days to JH Kelly in the table below.
- 5.67 The remaining delay, I attributed solely to PG&E's new design criteria.

Phase 1 Window	Delay Description	PG&E	JHK	AECOM	Exc. Non-Comp	Cumulative Delay
I	Changes to PG&E's Bid Design	69	0	0	0	69
II	PG&E's Preferential Change and the conflict between the duct bank and the existing utility	269	35	0	0	373
Total		338	35	0	0	

6 Analysis of Delay to Construction (Phase 2)

- 6.1 This section of the report deals with the Construction phase of the Project and covers the period between 17 October 2016 and 2 February 2018.

The Planned Sequence of Construction

- 6.2 In March 2016, AECOM issued (and included in its monthly progress reports) an initial schedule for completing the Project.¹⁴⁶ However, based on my review of this schedule, it does not contain enough detail, particularly for the construction of the Project, to be of any use in a delay analysis. As an example, this schedule does not contain construction activities for the entire scope of the buildings (e.g., the only buildings identified in this schedule are for the Auxiliary and Turbine/Compressor buildings).
- 6.3 In my opinion, it was not until October 2016 that AECOM developed a sufficiently detailed construction schedule. This schedule, which was dated 19 October 2016, was the first time that a work breakdown structure (“WBS”) was developed for the Phase 2 construction activities. Additionally, this was the first schedule which included the entire scope of buildings (including the Auxiliary, Compressor, Valve Houses, Fuel Gas and Storage Buildings).
- 6.4 The schedule was sent to PG&E in the October 2016 monthly progress report along with the 90% design drawings.¹⁴⁷
- 6.5 It is my understanding that this schedule was also used as the basis for JH Kelly’s bid and was the most complete schedule at the time that JH Kelly executed its Contract with AECOM.¹⁴⁸ It was also the schedule that JH Kelly used in performing their own delay analysis.¹⁴⁹
- 6.6 PG&E did not provide any comments to this schedule and thus, it is my understanding that the schedule was deemed to have been approved.
- 6.7 I do note that this Baseline Schedule included several instances of open-ended logic (i.e., missing logical links) and constraints, which results in this schedule not having a valid critical path.

¹⁴⁶ [BURNEY000081945-BURNEY000081955] See AECOM Monthly Reports from March 2016

¹⁴⁷ [BURNEY000120434-BURNEY000120455] See AECOM Monthly Report for October 2016

¹⁴⁸ See Tom Lee deposition Draft page 196

¹⁴⁹ [JHK_BURNEY_00373392-JHK_BURNEY_00373402] JH Kelly February 2018 Delay Claim exhibit 10

- 6.8 However, as discussed above, the as-planned versus as-built windows analysis places more emphasis on what actually happened and the baseline schedule is only used to measure delay against rather than a determination of criticality. I also note that the methodology is *“less reliant on programming software and usually applied when there is concern over the validity or reasonableness of the baseline programme and/or contemporaneously updated programmes and/or where there are too few contemporaneously updated programme.”*¹⁵⁰
- 6.9 Given all of the above, it is my opinion that this schedule is the most suitable baseline schedule on the Project, and I have herein used it as a benchmark from which to measure delay to JH Kelly’s construction activities and have referred to it as the Construction Baseline Schedule.
- 6.10 While a valid critical path was not present in this Construction Baseline Schedule, it is my opinion that if the proper logical links had been made, the planned critical path would have been through the Auxiliary Building, as this building was planned to finish last and contained the most complex and labor intensive work.
- 6.11 I note that, based on their subcontract terms, JH Kelly was obligated to produce and submit construction schedules for its work. From the documents that have been made available to me, and as mentioned previously, it appears that JH Kelly failed to issue monthly schedules on a consistent basis. Had JH Kelly properly maintained the schedule, the schedules could have been used to verify the critical path.
- 6.12 A graphical representation of the Construction Baseline schedule is shown on the following page at Figure 6-1.¹⁵¹

¹⁵⁰ SCL Delay Protocol 2nd Edition Paragraph 11.6

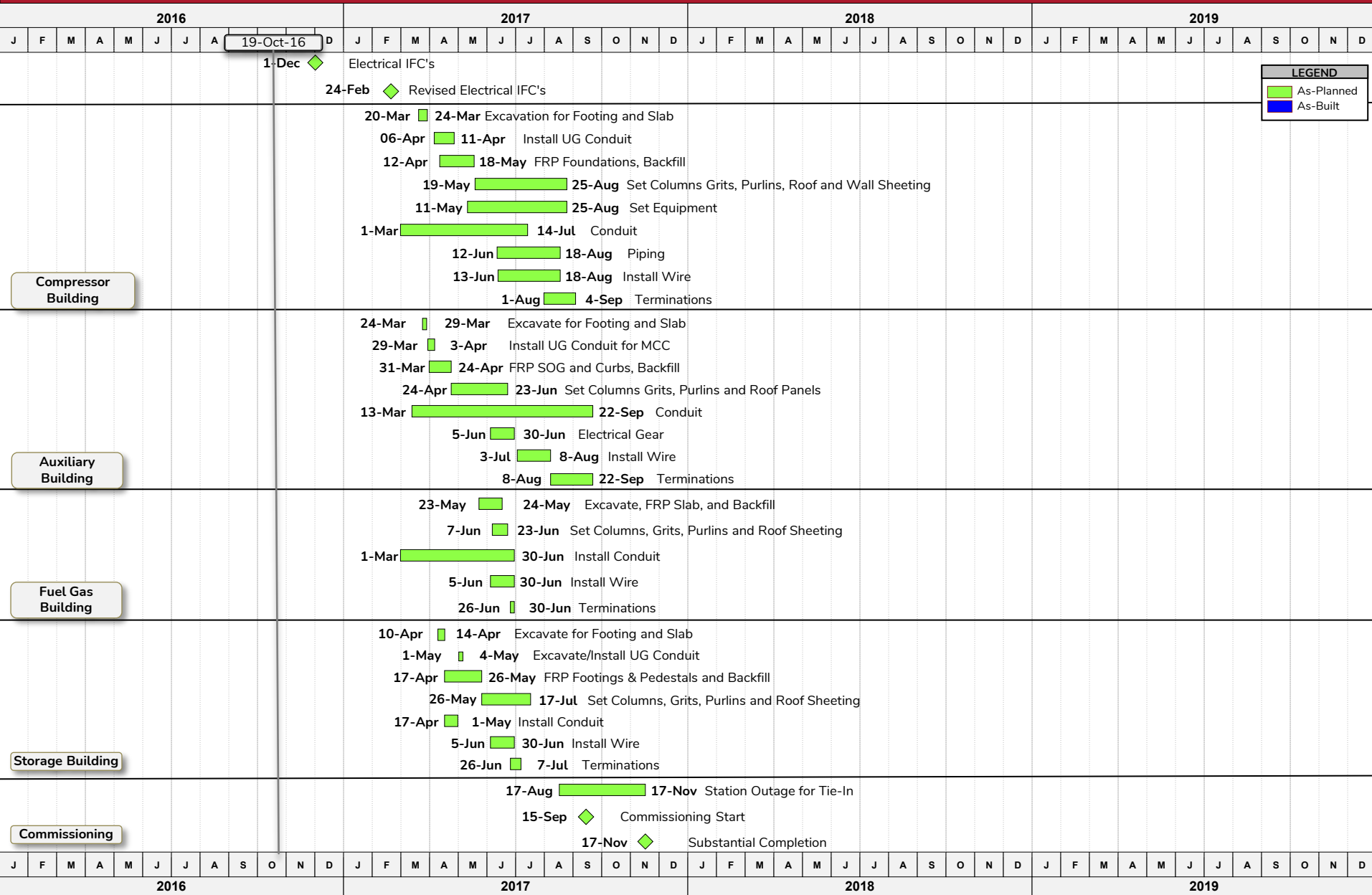
¹⁵¹ It is noted that the Baseline Schedule was transmitted to PG&E in a pdf format. Upon review of the electronic format of this schedule, it is evident that it is missing key logical links and many of the activities are open ended. This has the effect of giving certain activities and areas more float that is reasonable. I have therefore based delay measurements from the early dates in the schedule as these were the dates given to PG&E.

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Construction Baseline Schedule

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Figure 6-1



The Actual Sequence of Construction

- 6.13 In my opinion, the initial actual critical path for Phase 2 ran through the completion of the remaining electrical Phase 1 design submittals that were still outstanding as at the beginning of the construction work (and which were discussed in Section 5 of this report) as JH Kelly could not progress with the excavation or fabrication of the underground electrical work until it had received the revised IFC Electrical design.
- 6.14 I note that this opinion is also shared by AECOM's Electrical Lead, Mr. Goward, who stated in his deposition that due to PG&E's changes, the design was issued piecemeal to support the first construction activities (i.e., underground electrical conduit).¹⁵²
- 6.15 To that end, and as discussed previously, AECOM issued the IFC Conduit layout changes on 5 May 2017.¹⁵³ It was at this point in time, that JH Kelly could commence fabricating the underground conduit for the Auxiliary Building.
- 6.16 As discussed in detail in Section 5 of this report, PG&E's new design criteria made the below grade electrical work even more complex than it already was. This was discussed by Mr. Goward in his deposition as seen below:

"Putting everything underground and having to pinpoint exactly where those stub-ups need to go is absurd. Normally you would have the contractor, like JH Kelly, field route the conduit or install it on wherever -- above grade. So that changed the layout of the building because all of a sudden we're thinking about bringing conduit under the slab and what's the most convenient location with different panels and how do we make all of this work."¹⁵⁴

- 6.17 It is also my understanding that Mr. Lewis discusses the impacts of these changes in his expert report.
- 6.18 As will be shown, the first delivery of the underground conduit for the Auxiliary Building was made on 1 June 2017.¹⁵⁵ With this delivery, JH Kelly immediately began installing the underground conduit.¹⁵⁶ Given that, according to the Construction Baseline Schedule, this work was planned to commence on 29 March 2017, this means that the Project was **64 days in delay at this point in time**

¹⁵² See Dean Goward deposition page 87 and 88

¹⁵³ See Dean Goward deposition Exhibit 67

¹⁵⁴ See Dean Goward deposition page 83

¹⁵⁵ [AEC00289331-AEC00289339] See AECOM Daily Report of 1 June 2017

¹⁵⁶ [AEC00289331-AEC00289339] See AECOM Daily Report of 1 June 2017

- (1 June 2017 – 29 March 2017 = 64 days). In my opinion, this delay is attributable to the late issuance of the IFC Conduit drawing for the Auxiliary Building which was impacted by both PG&E's preferential design changes as well as the need to reroute the duct bank around the existing utility conflict.
- 6.19 Upon commencing excavations, JH Kelly encountered boulders which hindered their excavation.¹⁵⁷ Once the rock was cleared, JH Kelly continued the installations of the underground conduit beneath the Auxiliary Building and substantially completed this work on 17 July 2017 - **105 days later than planned** (17 July 2017 – 3 April 2017 = 104 days).¹⁵⁸
- 6.20 Once the conduit below the Auxiliary Building was complete, JH Kelly advanced the foundations and steel structure above. JH Kelly added extra shifts for this Auxiliary Building work and was able to dry-in the building by 28 September 2017.¹⁵⁹
- 6.21 While JH Kelly was able to progress the Auxiliary Building structure, the duct bank work (which consists of underground conduit runs encased in reinforced concrete) became delayed due to the increased complexity and scope that was a result of PG&E's preferential changes to the Electrical design (discussed in Section 5).
- 6.22 As discussed in the deposition of JH Kelly's Mr. Lee:
- "The electrical design was released piecemeal from a duct bank perspective because the duct banks come up inside of the auxiliary building and really are the start of the control network for the entire site. So laying that logic through the project is main critical path."***¹⁶⁰
- 6.23 Once the duct banks were substantially complete on 16 December 2017, the critical path shifted into the testing and terminations within the Auxiliary Building. At this point in time, Phase 2 was **130 days in delay** (16 December 2017 - 8 August 2017 = 130 days).¹⁶¹
- 6.24 After an agreed 12-day Project Shut Down over the winter holidays (between 22 December 2017 and 2 January 2018), JH Kelly continued progressing the electrical terminations.¹⁶² As it turns out, JH Kelly lost time in completing the electrical terminations as the work was more labor intensive than originally contemplated. Consequently, JH Kelly was only 30% complete when the critical path shifted

¹⁵⁷ [JHK_BURNEY_00337202-JHK_BURNEY_00337203] See JH Kelly Daily report of 6 June 2017

¹⁵⁸ [AEC00297894-AEC00297902] See AECOM daily report of 18 July 2017

¹⁵⁹ See As-Built Schedule Activity id ARCH00180 "Install Roof Panels/Insulation/Liner - Auxiliary Building"

¹⁶⁰ See Draft Deposition of Tom Lee Vol 2 page 36-37

¹⁶¹ [JHK_BURNEY_00167348-JHK_BURNEY_00167354] See JH Kelly Daily Report of 16 December 2017

¹⁶² [BURNEY000371663] Progress as reported in AECOM's February 2018 monthly report, Page 47/138

to the Commissioning phase on 2 February 2018 – **150 days later than planned** (2 February 2018 – 5 September 2017 = 150 days).¹⁶³

- 6.25 Around this time, AECOM developed a Commissioning Schedule (as discussed in Section 4 above) which showed a completion date of 16 April 2018. Given this date, the Commissioning Schedule showed a delay 150 days matching the delay above (16 April 2018 - 17 November 2017 = 150 days).
- 6.26 It is therefore my opinion that after 2 February 2018, the critical path switched into the commissioning work. I note that my analysis for this work is contained in Section 7 of this report.
- 6.27 Figure 6-2 on the following page graphically illustrates the actual critical path for the Construction work. It is noted that, JH Kelly has taken a similar position with respect to the critical path as shown in their February 2018 delay analysis.¹⁶⁴

Periods of Performance

- 6.28 To assist in the discussion and analysis of delays, I have broken the total period of performance into 4-time windows as can be seen in the table below. These time windows were established based on revisions to the planned sequence of construction, key events and shifts in the critical path.

Window	Description	Time Frame
I	Start of the Underground Conduit for the Aux Building	17 Oct 2016 to 1 Jun 2017
II	Underground Conduit Excavation	1 Jun 2017 to 17 Jul 2017
III	Installation of Underground Duct Banks	17 Jul 2017 to 16 Dec 2017
IV	Terminations and Testing	16 Dec 2017 to 2 Feb 2018

- 6.29 I discuss the above Windows in detail below and for each one I consider:
- a) The start and finish date of that window and the critical delay at the start and finish date of each window;
 - b) The critical path during each window;
 - c) The performance of the works during each period; and
 - d) The primary cause(s) of delay during each window.

- 6.30 The as-built performance of the Construction works can be seen in Figure 6-2 below.

¹⁶³ [BURNEY000371663] Progress as reported in AECOM's February 2018 monthly report, Page 47/138

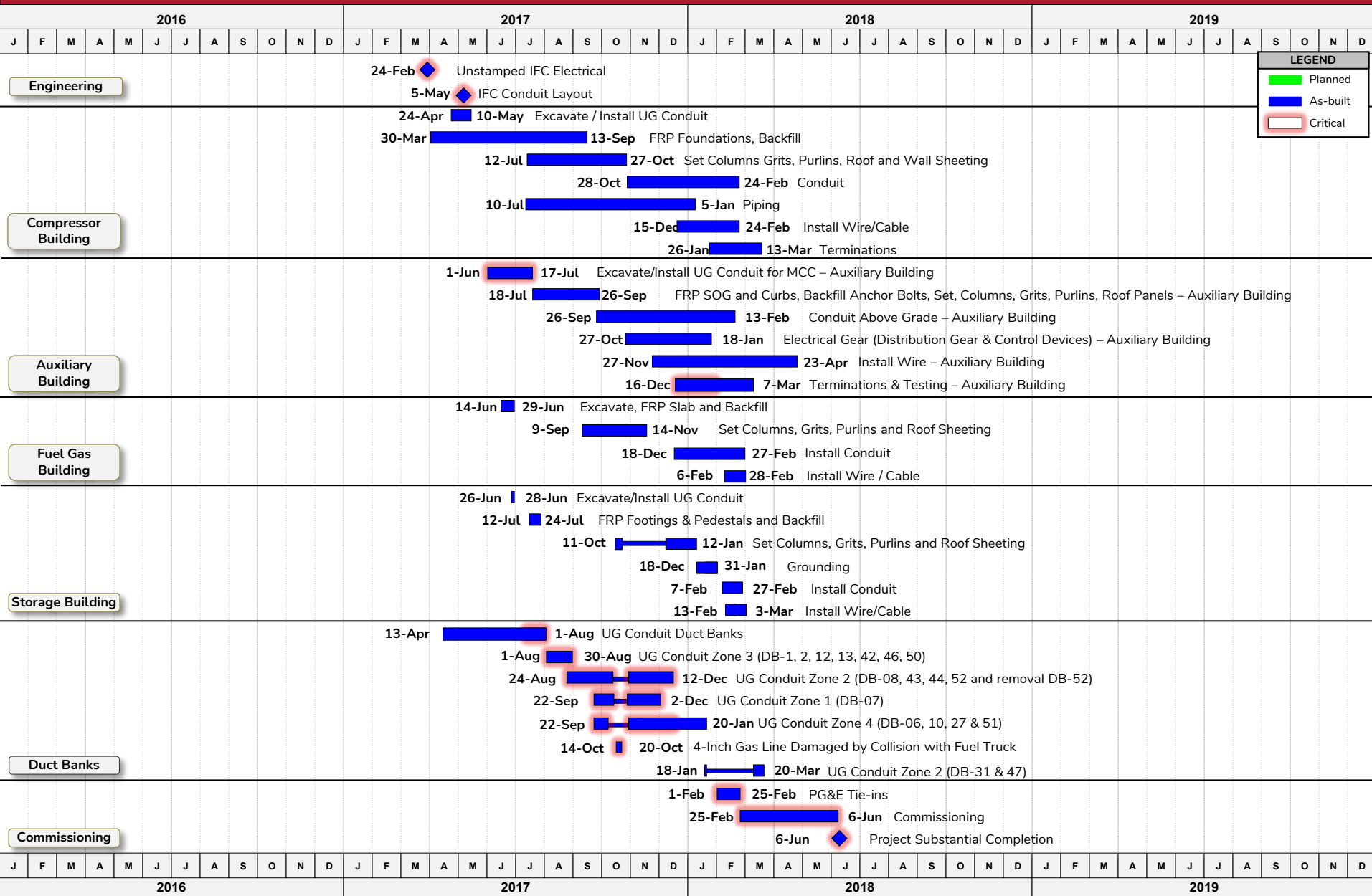
¹⁶⁴ [JHK_BURNEY_00373208-JHK_BURNEY_00373266] JH Kelly February 2018 delay claim

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Actual Critical Path for Construction

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Figure 6-2



Phase 2 Window I – Start of the UG Conduit for the Aux Bldg. (17 Oct 2016 to 1 Jun 2017)***Introduction***

- 6.31 At the end of Phase 1, AECOM was expecting to complete the IFC Electrical design package by 24 February 2017.¹⁶⁵ According to the January 2017 Schedule Update, if this date could be maintained, then Substantial Completion of Phase 2 could still be achieved by 17 November 2017 despite the delays to Phase 1.¹⁶⁶
- 6.32 On 6 March 2017, while PG&E continued to make the changes to the Electrical design, JH Kelly and AECOM field staff mobilized to site for Phase 2 construction work.¹⁶⁷
- 6.33 Due to PG&E's new design criteria (which was formalized between March and May 2017 as discussed in Section 5 of this report above), AECOM was not able to issue the full IFC Conduit layout drawing (which included the detail for the Auxiliary Building) until 5 May 2017.¹⁶⁸ While this did not constitute the complete IFC Electrical design package, the issuance of this IFC Conduit layout drawing was sufficient for JH Kelly to commence fabrication of the underground conduit for the critical Auxiliary Building.
- 6.34 After fabricating the underground conduit, JH Kelly was able to commence installation under the Auxiliary Building on 1 June 2017.¹⁶⁹
- 6.35 In terms of critical delay in this time window:
- a) The beginning of this time window, 17 October 2016, is the date of AECOM's Contract with JH Kelly;
 - b) According to the Construction Baseline Schedule, the excavation and installation of the underground conduit for the Auxiliary Building was planned to commence on 29 March 2017;¹⁷⁰
 - c) According to the daily reports, the excavation and installation of the underground conduit for the Auxiliary Building did not commence until 1 June 2017¹⁷¹ – **64 calendar days later than planned** (1 June 2017 – 29 March 2017 = 64 days); and

¹⁶⁵ [BURNEY000298833-BURNEY000298983] See AECOM Monthly Report for January 2018

¹⁶⁶ [BURNEY000298833-BURNEY000298983] See AECOM Monthly Report for January 2018

¹⁶⁷ [BURNEY000081842] See March 2017 Monthly Report page 13

¹⁶⁸ [JHK_BURNEY_00158253-JHK_BURNEY_00158254] See Summary Log of E&I IFC Drawings at exhibit 5 of JH Kelly electrical TIA

¹⁶⁹ I note that, only layout and survey work for the Auxiliary building trenches were carried out prior to this date

¹⁷⁰ Baseline Schedule Activity ID: A2510 "Install underground conduit for MCC"

¹⁷¹ [AEC00289331-AEC00289339] See AECOM Daily Report for 1 June 2017

d) The Project therefore was delayed **64 calendar days in this time period.**

6.36 From my review of the contemporaneous documents and the progress achieved during this time, the principal cause(s) of critical delay in this window appear to have been as follows:

- a) PG&E's preferential changes to the Electrical design; and
- b) Conflict between the duct bank and the existing utility.

PG&E's Preferential Changes to the Electrical Design

6.37 On 6 March 2017, while PG&E continued to make the changes to the Electrical design discussed in Section 5 of this report, JH Kelly and AECOM field staff mobilized to site for Phase 2 construction work.¹⁷²

6.38 The next day, on 7 March 2017, JH Kelly's earthworks subcontractor (Meyers) also mobilized to site.¹⁷³ Meyers in fact commenced excavations for the Compressor pad on 13 March 2017 as can be seen below.¹⁷⁴



Figure 6-3: Excavation for the Compressor pad on 13 March 2017¹⁷⁵

¹⁷² [BURNEY000081842] See March 2017 Monthly Report page 13

¹⁷³ [BURNEY000081842] See March 2017 Monthly Report page 13

¹⁷⁴ [BURNEY000081842] See March 2017 Monthly Report page 13

¹⁷⁵ [BURNEY000110569] See April 2017 monthly report page 16

- 6.39 While JK Kelly could commence the excavation work, they could not commence the installation of the underground conduit as they were still waiting on the IFC Conduit drawings. In fact, it was not until 21 March 2017 that JH Kelly received electrical IFC drawings for the Compressor Building and valve houses.¹⁷⁶
- 6.40 In an attempt to mitigate the delay to the drawings, AECOM authorized JH Kelly to work overtime to expedite deliveries of prefabricated conduit.¹⁷⁷ To that end, the first prefabricated conduit racks were delivered to the site on 11 April 2017 as shown in the image below.¹⁷⁸



Figure 6-4: First conduit delivery for the Compressor Building and Valve Houses on 11 April 2017¹⁷⁹

- 6.41 According to the Construction Baseline Schedule, JH Kelly actually planned to be completing the underground conduit for the Compressor Building on 11 April 2017 not only just commencing it.¹⁸⁰

¹⁷⁶ [AEC00658845-AEC00658848] Notice of Delay and Cost Impacts (Burney) 6-12-2017

¹⁷⁷ [AEC00658845-AEC00658848] Notice of Delay and Cost Impacts (Burney) 6-12-2017

¹⁷⁸ [BURNEY000110569] See April 2017 monthly report page 15

¹⁷⁹ [BURNEY000110569] See April 2017 monthly report page 15

¹⁸⁰ See Baseline Schedule Activity ID "A1190" Install underground conduit

6.42 Moreover, while JH Kelly was finally able to commence the underground conduit work at the Compressor Building, they were still on hold at the critical Auxiliary Building. Given that, according to the Construction Baseline Schedule, the Auxiliary Building was planned to commence before the Compressor building, it means that the Auxiliary Building was actually the most in delay.

6.43 While they waited for the IFC Conduit layout drawing for the Auxiliary Building, JH Kelly progressed the Compressor Building underground electrical work as shown in the progress photos below.

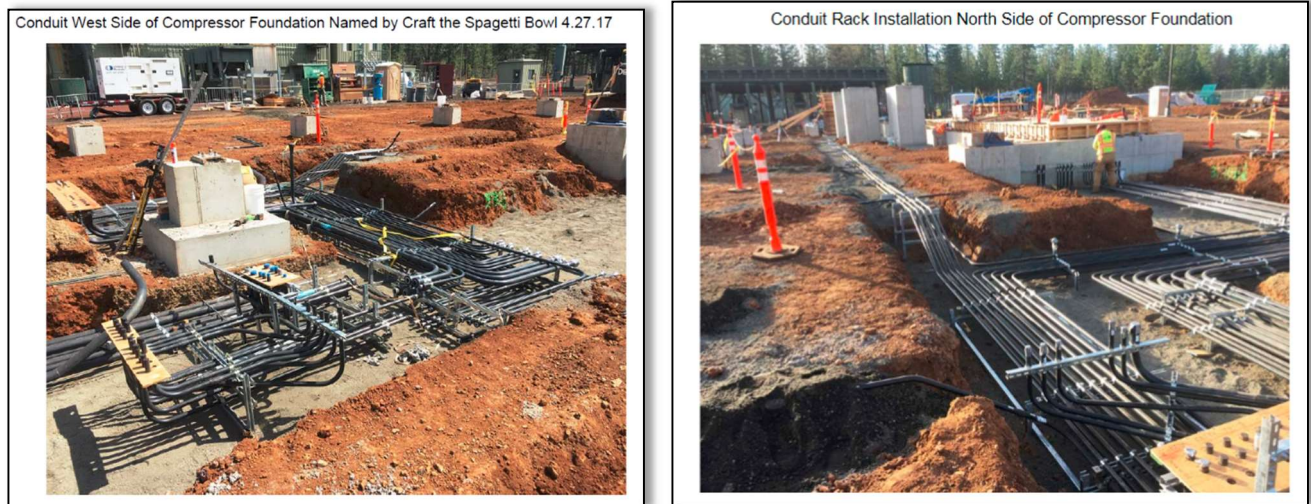


Figure 6-5: 27 April and 2 May 2017 Progress photo for the Compressor Area^{181 182}

6.44 As it turns out, due to PG&E's new design criteria (discussed in Section 5 above), AECOM was not able to issue the IFC Conduit layout for the Auxiliary Building until 5 May 2017.¹⁸³ PG&E approved the layout that same day.¹⁸⁴ With the approved drawing, JH Kelly could finally commence prefabricating the underground conduit for the Auxiliary Building.

6.45 Meanwhile, JH Kelly was able to substantially complete the below grade electrical work for the Compressor Building, pour the Compressor Building slab and set the compressor by 11 May 2017 as shown in the progress photo below.

¹⁸¹ [AEC00328663-AEC00328671] See AECOM Daily Report for 27 April 2017

¹⁸² [AEC00277297-AEC00277306] See AECOM Daily Report for 2 May 2017

¹⁸³ See Goward Deposition Exhibit 67

¹⁸⁴ See Goward Deposition Exhibit 67



Figure 6-6: 11 May Progress photo for the Compressor Area¹⁸⁵

6.46 At the same time, JH Kelly was able to complete the Auxiliary Building footings as shown in the figure below.



Figure 6-7: Auxiliary Building footings at 8 May 2017¹⁸⁶

¹⁸⁵ [AEC00374129-AEC00374139] See AECOM Daily Report for 11 May 2017

¹⁸⁶ [AEC00309840-AEC00309850] See AECOM Daily Report of 8 May 2017

6.47 On 10 May 2017, shortly after receiving the Auxiliary Building IFC Conduit layout, it was recorded in meeting minutes that JH Kelly informed AECOM that the:

“Conduit for the Auxiliary building is still 2 to 3 weeks away from delivery from Longview WA”.¹⁸⁷

6.48 Meanwhile, JH Kelly began installing duct bank sections between various buildings as shown in the progress photos below.



Figures 6-8: Progress Photos of duct banks (not underneath buildings) as at 16 May 2017¹⁸⁸

6.49 It was later recorded in the meeting minutes of 17 May 2017 that:

“JH Kelly big push is for auxiliary building conduit. The deep conduits have not shipped yet. A substantial amount of conduit has been fabricated, but many still need to be put in racks. Site delivery date is forecast for May 31st”.¹⁸⁹

6.50 By 23 May 2017, JH Kelly commenced the duct bank leading up to the Auxiliary Building as shown in the photo below.¹⁹⁰

¹⁸⁷ [BURNEY000232087-BURNEY000232091] 2017-05-10-BURNEY K2 MEETING MINUTES

¹⁸⁸ [AEC00280390-AEC00280399] See AECOM Daily Report of 16 May 2017

¹⁸⁹ [JHK_BURNEY_00023303-JHK_BURNEY_00023305] 2017-05-17-BURNEY K2 MEETING MINUTES

¹⁹⁰ [AEC00321448-AEC00321457] See AECOM Daily Report of 23 May 2017



Figure 6-9: Progress Photo of duct banks reacing Auxiliary Building as at 23 May 2017¹⁹¹

6.51 It was recorded in the minutes of a meeting on 24 May that:

“JHK Longview shop has developed a model for the conduit installation in the auxiliary building showing how the conduit will be sequenced for fabrication, shipping, and installation. There will be about 5,000 feet of conduit built in 15 modules for delivery and installation from the end of May to the end of June.”¹⁹²

6.52 According to the as-built record, the first delivery of conduit for the Auxiliary Building arrived on 1 June 2017.¹⁹³ As can be seen in the figure below, some of the conduit was immediately installed under the Auxiliary Building.

¹⁹¹ [AEC00321448-AEC00321457] See AECOM Daily Report of 23 May 2017

¹⁹² [JHK_BURNEY_00023321-JHK_BURNEY_00023323] 2017-05-24-BURNEY K2 MEETING MINUTES

¹⁹³ [JHK_BURNEY_00337166-JHK_BURNEY_00337167] JH Kelly Daily Report of 1 June 2017



Figure 6-10: Progress Photo of first conduit rack beneath Auxiliary Building as at 1 June 2017¹⁹⁴

Conflict between the duct bank and the existing utility

- 6.53 As discussed previously, a conflict between a proposed duct bank and an existing utility (a 34" gas line) was discovered upon the submission of the unstamped Electrical design issued on 24 February 2017.
- 6.54 Mr. Lewis has noted that the conflict between the new duct bank location and the existing underground gas lines were shown on AECOM's 30%, 60% and 90% drawings. Despite this, and my understanding that JH Kelly had a responsibility to provide constructability reviews of AECOM's incremental design drawings, JH Kelly failed to notify AECOM of construction concerns with these conflicts until March 2017.¹⁹⁵ As a result, the redesign of the duct bank in the area of the cooler facility had a larger impact on the issuance of the IFC drawings than it otherwise should have and specifically was a cause of delay to the issuance of the IFC Conduit layout for the Auxiliary building.

¹⁹⁴ [AEC00289331-AEC00289339] See AECOM Daily Report of 1 June 2017

¹⁹⁵ [BURNEY000075209] Contract between AECOM and PG&E Art. 1.4.1, 2.2.1, 2.17. See also JHK0050723-70 Pg 3, item 7 – lists and Pg 15.

Conclusion

- 6.55 According to the Construction Baseline Schedule, JH Kelly should have commenced excavation and installation for the Auxiliary Building conduit installation on 24 March 2017. Given this date, the Project was therefore 64 days behind schedule when JH Kelly actually commenced this work on 1 June 2017 (1 June 2017 – 29 March 2017 = 64 days).
- 6.56 In my opinion, this delay is attributable to the late issuance of the IFC Conduit drawing for the Auxiliary Building which was impacted by both PG&E's preferential design changes as well as the need to reroute the duct bank around the existing utility conflict. Should it be found that JH Kelly was responsible for catching the conflict earlier than they did, then they would share accountability for the delay. For purposes of this report, I assumed this to be the case. However, based on the records that have been made available to me, I have not been able to determine exactly when the change to routing of the duct bank was made. I have therefore split the delay equally between PG&E and JH Kelly (i.e., 32 days to PG&E and 32 days to JH Kelly) as it seems that approximately half of the added duct bank is related to the rerouting around the existing conflict.
- 6.57 The table below summarizes the actual delay incurred in Phase 2 Window I. The delay during this time period is also illustrated in Figure 6-11 on the following page.

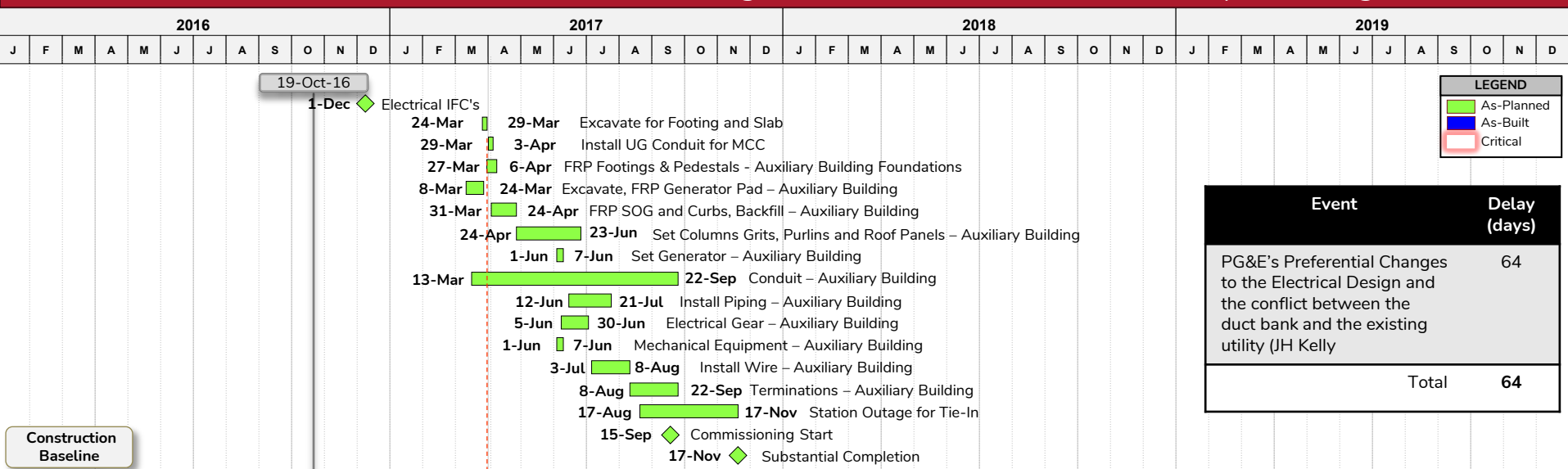
Phase 2 Window	Cause of Delay	Delay in Window (Days)
I	PG&E's Preferential Changes to the Electrical Design and the conflict between the duct bank and the existing utility (PG&E and JH Kelly)	64
Total		64

Burney Compression Station K-2 Replacement Project

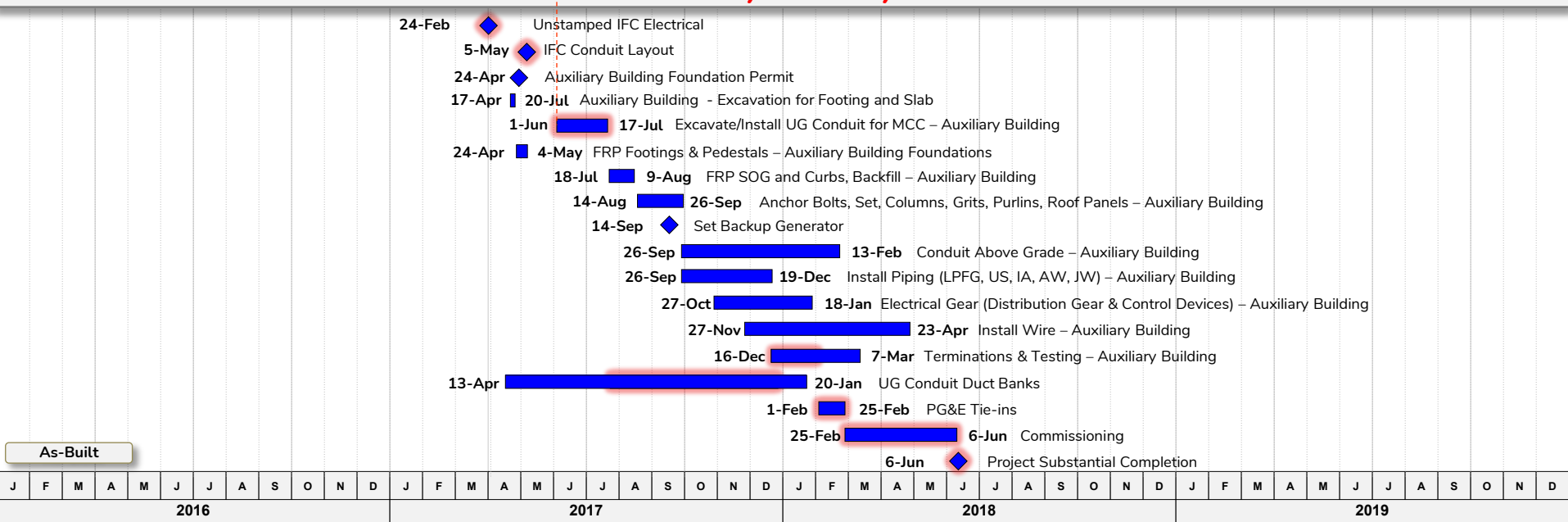
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Phase II Window I – Start of Underground Conduit for the Auxiliary Building

Figure 6-11



Total Delay = 64 Days



Phase 2 Window II – UG Conduit Installation (1 Jun 2017 to 17 Jul 2017)**Introduction**

- 6.58 Upon commencing the excavations for underground conduit work at the Auxiliary Building, JH Kelly took longer than planned to complete this work.
- 6.59 In my opinion, this extended duration was due to the discovery of boulders during excavation, the additional scope from PG&E's change in design, and JH Kelly's slower than planned progress.
- 6.60 In terms of critical delay in this time window:
- a) At the beginning of this time window (i.e., on 1 June 2017), the Project was 64 calendar days behind schedule;
 - b) According to the Construction Baseline Schedule, JH Kelly planned to complete the installation of the underground conduit for the Auxiliary Building such that it could commence the Auxiliary Building FRP slab work by 31 March 2017.¹⁹⁶
 - c) Due to a number of reasons discussed herein, JH Kelly did not actually complete the underground conduit for the Auxiliary Building until 17 July 2017¹⁹⁷ – **105 calendar days later than planned** (17 July 2017 – 3 April 2017 = 105 days); and
 - d) The Project therefore was delayed **a total of 41 calendar days in this time period** (105 days – 64 days = 41 days).
- 6.61 From my review of the contemporaneous documents and the progress achieved during this time, the principal cause(s) of critical delay in this window appear to have been as follows:
- a) Discovery of Boulders;
 - b) Increased underground conduit as a result of PG&E's preferential electrical changes; and
 - c) Slower than planned progress installing the underground conduit underneath the Auxiliary Building.

Discovery of Boulders

- 6.62 At the end of the previous time period (i.e., 1 June 2017), JH Kelly commenced installation of the underground conduit for the Auxiliary Building. On that same day, large boulders were discovered as shown in the figures below.

¹⁹⁶ See Baseline Schedule Activity ID: A2530 "Form, Rebar, Pour interior slab section 1"

¹⁹⁷ See As-Built Schedule Activity ID "ELEC00090" Excavate/Install UG Conduit for MCC - Auxiliary Building"



Figure 6-12: Boulders found in Auxiliary Building between column lines 1 and 2 on 1 June 2017¹⁹⁸

6.63 Once these boulders were removed, the bedding and first conduit rack sections in this area were set in place as shown in the figures below.



Figure 6-13: Bedding and first conduit rack placed between column lines 1 and 2 on 5 June 2017¹⁹⁹

6.64 On 5 June (the second day of excavation) rock was again found as shown in the figures below.²⁰⁰

¹⁹⁸ [AEC00289331-AEC00289339] See AECOM daily report of 1 June 2017

¹⁹⁹ [AEC00289331-AEC00289339] See AECOM daily report of 1 June 2017

²⁰⁰ [AEC00355038-AEC00355046] See AECOM daily report of 5 June 2017



Figure 6-14: Boulders found in Auxiliary Building between column lines 2 and 3²⁰¹

6.65 As can be seen from the figures above, JH Kelly was installing conduit as the rocks were removed. JH Kelly continued to remove rock on 6 and 7 June 2017 as shown in the site progress photos below.²⁰²²⁰³



Figure 6-15: Progress Photos from boulders / rock excavations at Auxiliary Building on 6 and 7 June 2017^{204 205}

6.66 By 12 June, AECOM was reporting that the last sections of rock were broken up as shown in the figures below.²⁰⁶

²⁰¹ [AEC00355038-AEC00355046] See AECOM daily report of 5 June 2017

²⁰² [AEC00309534-AEC00309541] See AECOM daily report of 6 June 2017

²⁰³ [AEC00307280-AEC00307288] See AECOM daily report of 7 June 2017

²⁰⁴ [AEC00309534-AEC00309541] See AECOM daily report of 6 June 2017

²⁰⁵ [AEC00307280-AEC00307288] See AECOM daily report of 7 June 2017

²⁰⁶ [AEC00373159-AEC00373167] See AECOM daily report of 12 June 2017



Figure 6-16: Hydraulic Ram Hammer breaking up last remaining rock on 12 June 2017²⁰⁷

- 6.67 JH Kelly contemporaneously noted that the rock in the Auxiliary Building hindered their work until 12 June 2017 and that there were several days in which Meyers spent 10 hours (i.e., a full day) removing rock.^{208 209 210}
- 6.68 According to the Construction Baseline Schedule, the excavations were planned to take 5 days (24 March to 29 March 2017). However, due to the discovery of boulders, this excavation work actually took 12 days (1 June to 12 June 2017 inclusive). Therefore, 7 days of delay during the excavation works were caused by the discovery of boulders (12 days – 5 days = 7 days).
- 6.69 It is my understanding that the discovery of boulders is an unforeseen condition and is therefore attributable to PG&E.²¹¹

Increased Underground Conduit as a result of PG&E's Preferential Electrical Changes

- 6.70 As mentioned previously, PG&E's new design criteria impacted the underground conduit for the Auxiliary Building. Not only did this redesign impact the start of the underground conduit work, it also created additional scope by increasing the size and depth of the duct banks and also adding additional duct bank runs (as seen in the figure below).²¹²

²⁰⁷ [AEC00373159-AEC00373167] See AECOM daily report of 12 June 2017

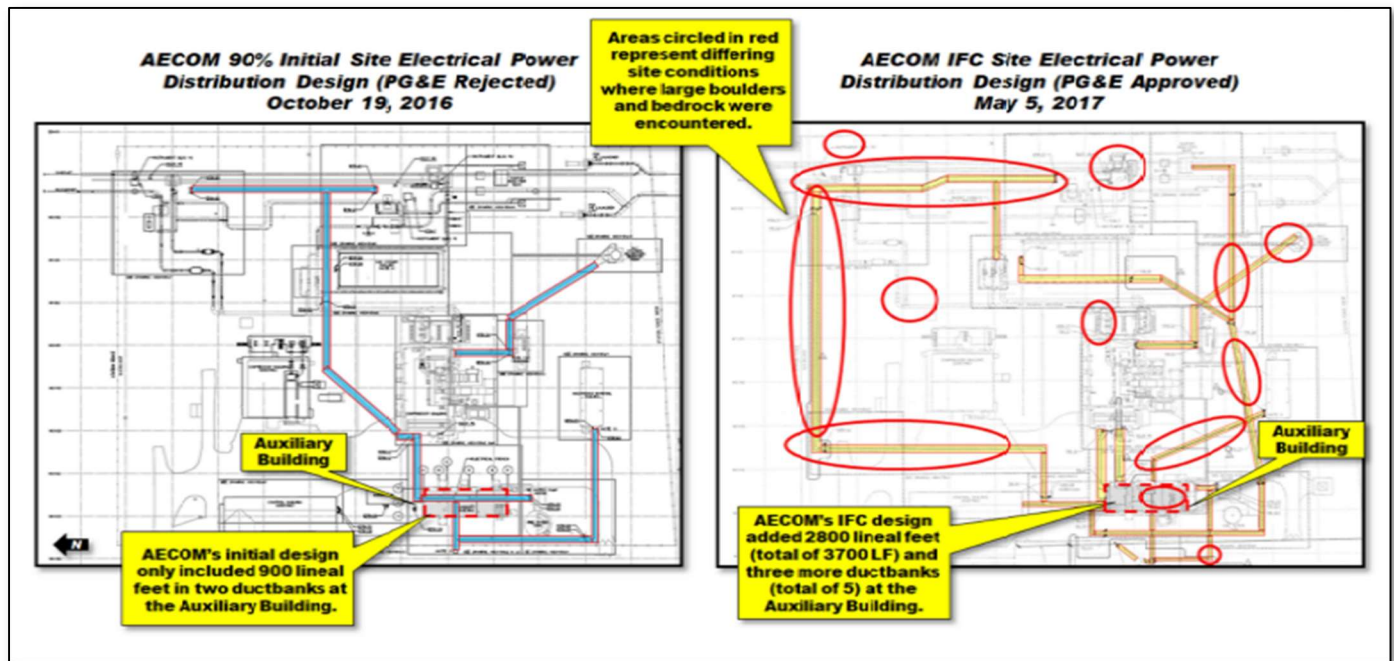
²⁰⁸ [JHK_BURNEY_00337202-JHK_BURNEY_00337203] See JH Kelly Daily report of 6 June 2017

²⁰⁹ [JHK_BURNEY_00337168-JHK_BURNEY_00337169] See JH Kelly Daily report of 7 June 2017

²¹⁰ [JHK_BURNEY_00368307-JHK_BURNEY_00368308] See JH Kelly Daily report of 12 June 2017

²¹¹ [BURNEY000501981_PGEProductionVOL003] AECOM Bid assumptions

²¹² [JHK_BURNEY_00383758 (Graphic 2), JHK_BURNEY_00383791 (Ex. 6)] JH Kelly Revised Delay Claim

Figure 6-17: Pre IFC Additional Scope²¹³

- 6.71 It is my understanding that the 90% initial Electrical design (on which the Construction Baseline Schedule was developed) included 900 lf of conduit underneath the Auxiliary Building.²¹⁴ According to the Construction Baseline Schedule, JH Kelly planned to complete this work in 4 workdays (between 29 March and 3 April 2017). This equates to a productivity rate of 225 lf of conduit per day (900 lf / 4 days = 225 lf/day).
- 6.72 It is also my understanding that the final IFC Electrical design added 2,800 lf of conduit underneath the Auxiliary Building (for a total of 3,800 lf).²¹⁵ Using JH Kelly's planned productivity rate (as described above), this means the added work should have taken an additional 19 days to complete (2,800 lf / 225 lf per day = 19 days).
- 6.73 As this additional work is a direct result of PG&E's preferential changes, I have attributed this delay to PG&E.

²¹³ [JHK_BURNEY_00383758 (Graphic 2), JHK_BURNEY_00383791 (Ex. 6)] JH Kelly Revised Delay Claim²¹⁴ [JHK_BURNEY_00383758 (Graphic 2), JHK_BURNEY_00383791 (Ex. 6)] JH Kelly Revised Delay Claim²¹⁵ [JHK_BURNEY_00383758 (Graphic 2), JHK_BURNEY_00383791 (Ex. 6)] JH Kelly Revised Delay Claim

Slower than planned progress installing the underground conduit underneath the Auxiliary Building

- 6.74 Once the boulders had been removed, JH Kelly recommenced installing the underground conduit underneath the Auxiliary Building on 13 June 2017 as seen in the figures below.²¹⁶



Figure 6-18: Progress photos of Auxiliary Building underground conduit as at 13 and 14 June 2017^{217 218}

- 6.75 This work continued through the rest of June 2017 and into July 2017 as can be seen in the progress photos shown below.

²¹⁶ [AEC00331274-AEC00331282] See AECOM daily report of 13 June 2017

²¹⁷ [AEC00331274-AEC00331282] See AECOM daily report of 13 June 2017

²¹⁸ [AEC00338202-AEC00338210] See AECOM daily report of 14 June 2017



Figure 6-19: Progress Photos of Auxiliary Building underground conduit as at 15 and 19 June 2017^{219 220}



Figure 6-20: Progress Photos of Auxiliary Building underground conduit as at 20 and 21 June 2017^{221 222}

²¹⁹ [AEC00367024-AEC00367033] See AECOM daily report of 15 June 2017

²²⁰ [AEC00284828-AEC00284836] See AECOM daily report of 19 June 2017

²²¹ [AEC00353578-AEC00353586] See AECOM daily report of 20 June 2017

²²² [AEC00352258-AEC00352267] See AECOM daily report of 21 June 2017



Figure 6-21: Progress Photos of Auxiliary Building underground conduit as at 26 and 29 June 2017^{223 224}



Figure 6-22: Progress Photos of Auxiliary Building underground conduit as at 5 and 6 July 2017^{225 226}

6.76 JK Kelly substantially completed this work on 17 July 2018 and began backfilling the Auxiliary Building the next day (i.e., 18 July 2017) as seen in the progress photos below.

²²³ [AEC00376346-AEC00376354] See AECOM daily report of 26 June 2017

²²⁴ [AEC00340368-AEC00340374] See AECOM daily report of 29 June 2017

²²⁵ [AEC00364374-AEC00364381] See AECOM daily report of 5 July 2017

²²⁶ [AEC01020812-AEC01020819] See AECOM daily report of 6 July 2017



Figure 6-23: Progress Photos of Auxiliary Building backfill over conduit 18 July 2017²²⁷

- 6.77 Given the above dates, this means it actually took JH Kelly 47 calendar days to complete this work (18 July 2017 – 1 June 2017 = 47 days). Considering the planned duration of 6 calendar days to do this work (3 April 2017 – 29 March 2017), JH Kelly took 41 calendar days longer than originally anticipated (47 days – 6 days = 41 days).
- 6.78 Considering the 7-day delay caused by the Boulders and the 19-day delay caused by the additional scope (for a total of 26 days), this means that JH Kelly lost an additional 15 days of delay in this work (41 days – 26 days = 15 days).
- 6.79 From the documents that are available to me, it is unclear what caused this delay. I note that at the time the underground conduit started for the Auxiliary Building, JH Kelly only had 4 electricians on site to install conduit (as can be seen in the figure below). It is also clear from the figure below that more electricians were needed to complete this work as they were eventually added later.

²²⁷ [AEC00297894-AEC00297902] See AECOM daily report of 18 July 2017

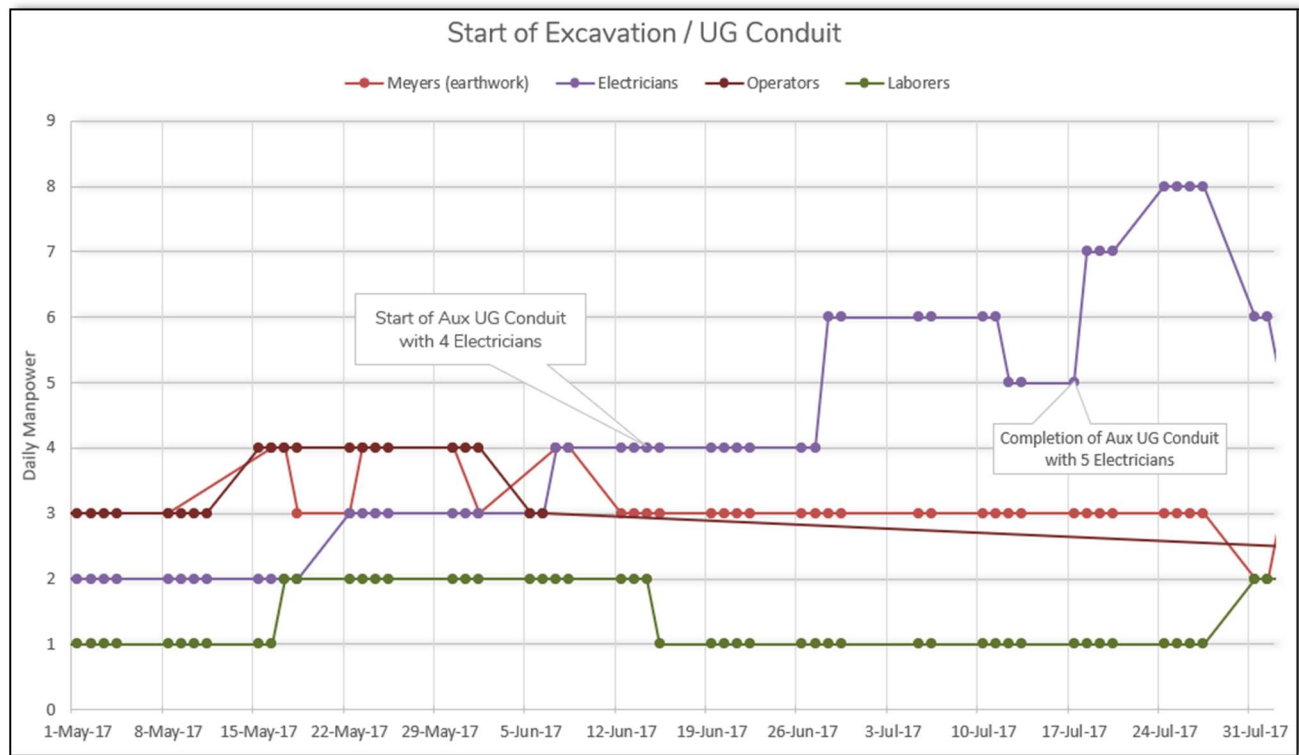


Figure 6-24: Manpower compiled from AECOM Daily Reports May to July 2017²²⁸

6.80 A review of the daily reports, indicates that these workers were not installing conduit at the Auxiliary Building every day even though the schedule at the time (dated 9 July 2017), showed this work as critical. Instead, it seems the labor was moving around the site rather than focusing on critical work.

6.81 I also note that JH Kelly delivered the last prefabricated conduit assemblies on 6 July 2017 which is longer than they forecasted back on 17 May 2017 (when they stated in a meeting that the delivery would be made at the latest by 1 June 2017 as discussed previously).²²⁹

6.82 Based on all of the above, I have attributed this delay to JH Kelly's slower than planned productivity.

Conclusion

6.83 Of the additional 41 calendar days it took to install the underground conduit for the Auxiliary Building:

- a) 7 calendar days can be attributed to the discovery of Boulders;
- b) 19 calendar days can be attributed to the additional scope caused by PG&E's preferential electrical changes; and

²²⁸ [Reports found in bates range AEC00277297 through AEC01066483] AECOM daily manpower reports from May 2017 to July 2017

²²⁹ [JHK_BURNEY_00023303-JHK_BURNEY_00023305] 2017-05-17-BURNEY K2 MEETING MINUTES

c) The remaining 15 days appear to be due to JH Kelly's slower than planned progress installing the underground conduit underneath the Auxiliary Building.

6.84 The table below summarizes the actual delay incurred in Phase 2 Window II. The delay during this time period is also illustrated in Figure 6-25 on the following page.

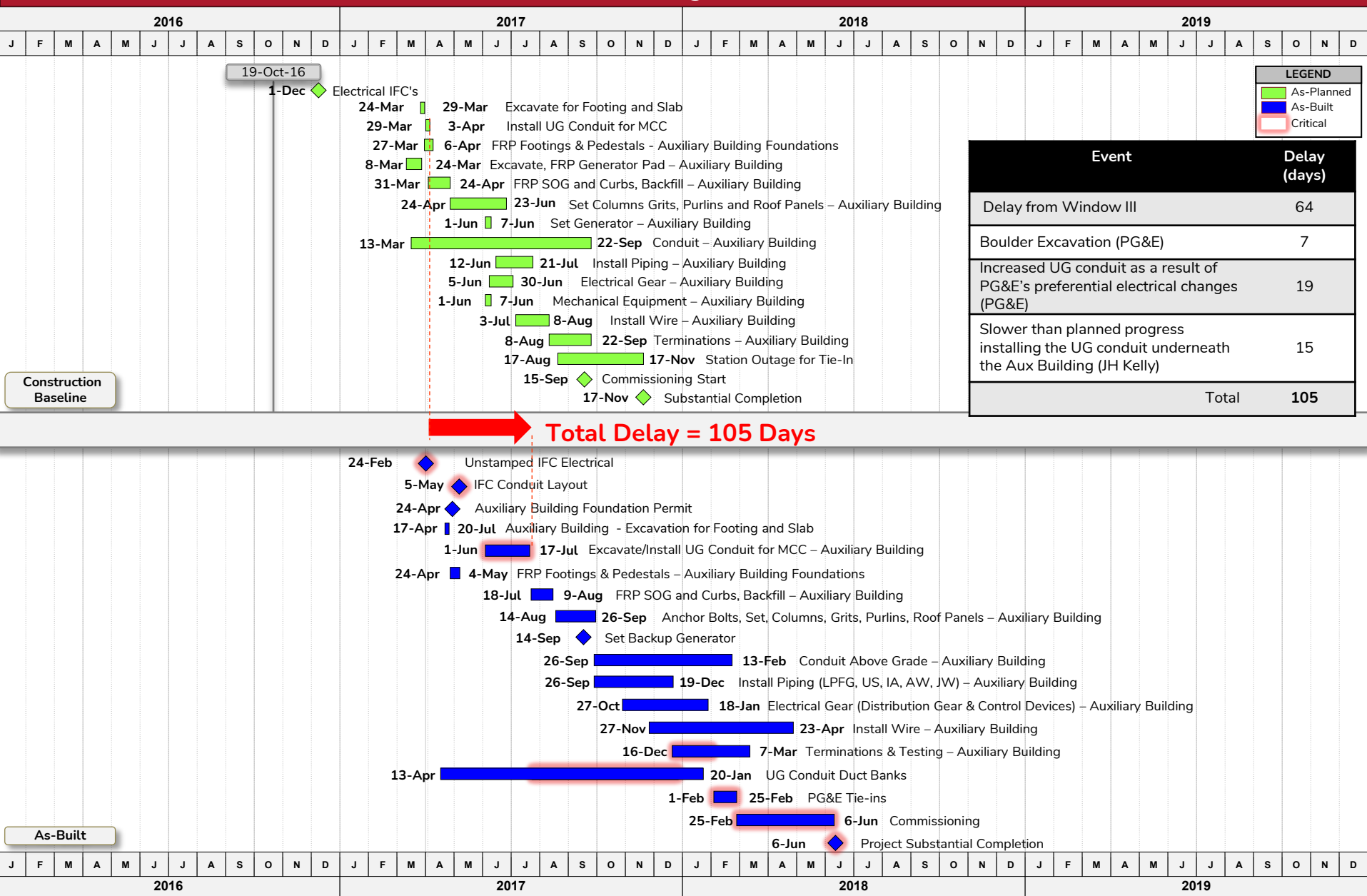
Phase 2 Window	Cause of Delay	Delay in Window (Days)
	Delays through Window I	64
II	Boulder Excavation (PG&E)	7
II	Increased underground conduit as a result of PG&E's preferential electrical changes (PG&E)	19
II	Slower than planned progress installing the underground conduit underneath the Auxiliary Building (JH Kelly)	15
Total		105

Burney Compressor Station K-2 Replacement Project

Phase II Window II – Underground Conduit Installation

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Figure 6-25



Phase 2 Window III – Installation of UG Duct Banks (18 Jul 2017 to 16 Dec 2017)

Introduction

- 6.85 At the end of the previous window, JH Kelly had completed sufficient underground conduit to start backfilling the Auxiliary Building. Once the underground conduit was complete within the Auxiliary building, JH Kelly continued to make good progress in the Auxiliary building structure and as will be shown, JH Kelly was able to complete this work 14 days faster than planned. According to the Construction Baseline Schedule, once the Auxiliary building was dried-in, JH Kelly planned to complete conduit and terminations on 8 August 2017.²³⁰
- 6.86 However, despite this good progress in the Auxiliary Building, JH Kelly was delayed in other areas of the Project, namely the underground electrical conduit (i.e., duct banks). As it turns out, JH Kelly was unable to progress the electrical duct banks as planned and this work subsequently delayed the commencement of terminations in the Auxiliary Building until 16 December 2017.²³¹
- 6.87 In terms of critical delay in this time window:
- a) At the beginning of this time window (i.e., on 18 July 2017), the Project was 105 calendar days behind schedule;
 - b) According to the Construction Baseline Schedule, JH Kelly planned to complete enough electrical work to commence terminations in the Auxiliary Building by 8 August 2017;²³²
 - c) Due to the additional and increased duct banks that were required due to PG&E's preferential electrical changes, JH Kelly was not actually able to substantially complete the duct banks and commence terminations and testing until 16 December 2017 - **130 calendar days later than planned** (16 December 2017 – 8 August 2017 = 130 days); and
 - d) The project was therefore delayed an additional **25 calendar days in this time period** (130 days – 105 days = 25 days).
- 6.88 From my review of the contemporaneous documents and the progress achieved during this time, the principal cause(s) of critical delay in this window appear to have been as follows:
- a) Additional and increased duct banks as a result of PG&E's preferential electrical changes; and
 - b) A project shut down caused by a fuel truck hitting a 4" gas line.

²³⁰ See Baseline Schedule Activity ID: A2820 "Termination"

²³¹ [JHK_BURNEY_00167348-JHK_BURNEY_00167354] See JH Kelly Daily Report of 16 December 2017

²³² See Baseline Schedule Activity ID: A2820 "Termination"

Additional and Increased Duct Banks as a result of PG&E's Preferential Electrical Changes

- 6.89 As previously discussed, the Construction Baseline Schedule was prepared based on the 90% design drawings. It is my understanding that these drawings contained 900 linear feet of conduit in 2 duct banks.²³³ The Construction Baseline Schedule also stipulated that underground conduit excavations and installations would be carried out between 29 March and 4 May 2017 (over a period of 36 calendar days for the Auxiliary, Compressor, and Hazmat Storage buildings).²³⁴
- 6.90 As discussed by Mr. Lee in his deposition, on or around July 2017, the Construction Schedule was finally updated to reflect the preferential changes made by PG&E activities including the additional and increased duct banks.²³⁵ According to this schedule, JH Kelly planned to complete the added scope and the remaining duct banks between 31 July 2017 and 30 November 2017 (over a period of 122 calendar days).²³⁶ In other words, the July 2017 schedule showed an 86 day increase over the Construction Baseline Schedule.
- 6.91 Further compounding the impact of this added scope, JH Kelly continued to encounter boulders in several areas. In fact, according to JH Kelly's daily reports, immediately upon commencing the duct bank, they encountered rock and existing PG&E utilities that hindered their progress between 1 and 4 August 2017.²³⁷
- 6.92 By the end of August 2017, JH Kelly had completed 6 duct banks and in the weekly meetings it was reported that the underground electrical work was 40% complete (with 19,500 LF installed).²³⁸

²³³ [JHK_BURNEY_00383758 (Graphic 2), JHK_BURNEY_00383791 (Ex. 6)] JH Kelly Revised Delay Claim

²³⁴ See Baseline Schedule Activity ID: A1190, A2130, and A2510 "Install Underground Conduit" for the Compressor, Auxiliary and Hazardous Material Building. Note: These are the only underground conduit activities specified in the Construction Baseline Schedule and were planned to be completed between 29 March and 4 May 2017

²³⁵ See Tom Lee deposition Draft pages 196 to 197

²³⁶ [BURNEY000110672] See AECOM July 2017 Monthly Report, page 45/92

²³⁷ [JHK_BURNEY_00337437-JHK_BURNEY_00337439 (8/1), JHK_BURNEY_00337089-JHK_BURNEY_00337090 (8/4)] See JH Kelly Daily reports of 1 and 4 August 2017

²³⁸ [JHK_BURNEY_00151594-JHK_BURNEY_00151598] 2017-08-30-BURNEY K2 MEETING MINUTES



Figure 6-27: Progress photo of duct banks as at 29 August 2017²³⁹

6.93 In September 2017, JH Kelly continued to progress the duct bank work in Zone 1 as excerpted in AECOM's October monthly report below and shown in the following photo.²⁴⁰

Work continued on excavation for the underground piping for Fuel Gas, Utility and Instrument Air to the Auxiliary Building, DB7, DB52, and DB43 (gas cooler south side). This work was impeded by continued discovery of unmarked/mismarked existing utilities and hard rock and boulders in the excavations. This work is additional work and outside the scope set forth in the Contract. Excavation work was further slowed by PG&E's prohibition against using mechanical means in the area to complete DB7 and DB 52. As a result, rock removal was performed by hand, which substantially extended the duration of this work and likewise increased costs. The Fire Water Tank foundation was completed at the end of October and ready for the tank installation contractor to install the tank materials that are on site next month.

Planned excavation/demolition of the Zone 1 piping was delayed due to PG&E delays to clearing the lines, primarily caused by the failure of GOV-2 to completely seal. Once the valve was sealed, the final cap was welded on October 13. Thereafter, JH Kelly was able to begin demolition of the underground pipe and ductbank in Zone 1 in preparation of installing the new 30" pipe spools only after completion of the cross compression performed by PG&E in association with the replacement of V-35.

Figure 6-28: AECOM Monthly Report of September 2017²⁴¹

²³⁹ [JHK_BURNEY_00337899-JHK_BURNEY_00337906] AECOM Daily report of 29 August 2017

²⁴⁰ [BURNEY000088005-BURNEY000088106] See AECOM Monthly Report for September 2017

²⁴¹ [BURNEY000088005-BURNEY000088106] See AECOM Monthly Report for September 2017

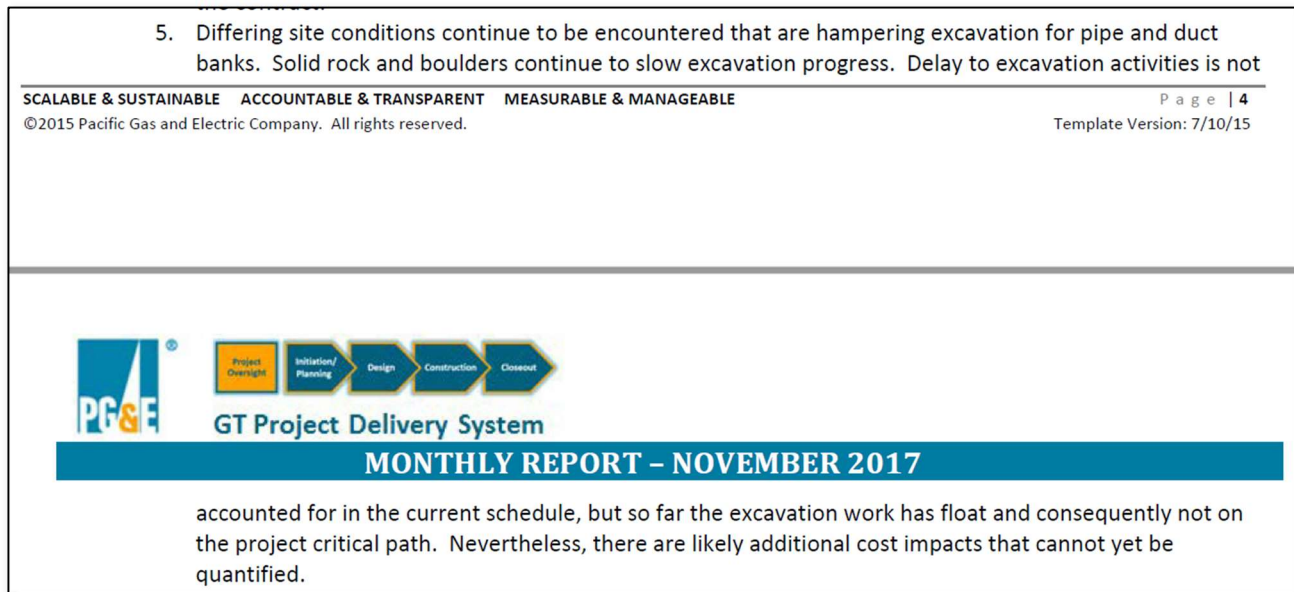


Figure 6-29: Installed Duct Bank as at September 2017²⁴²

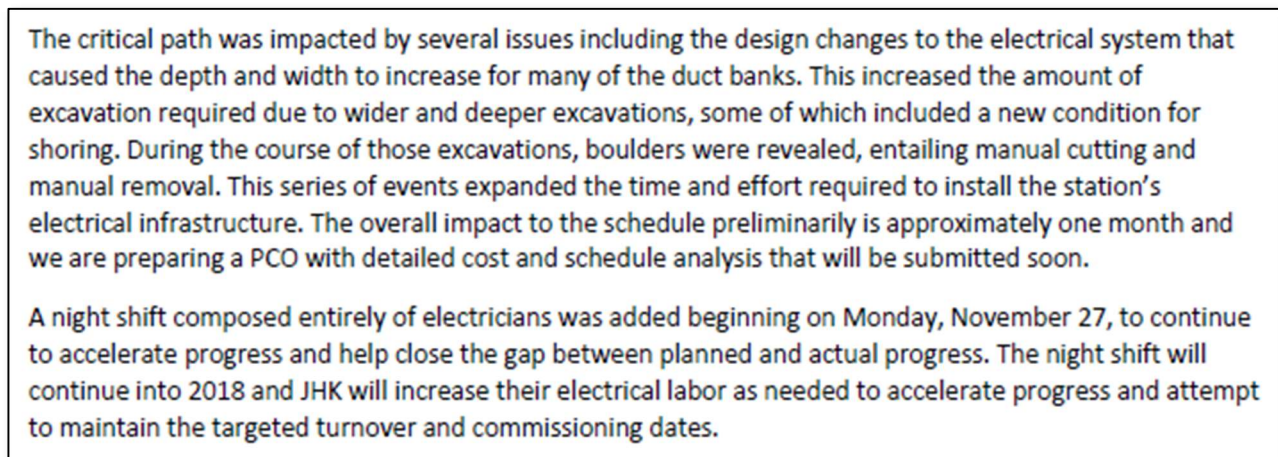
6.94 Both AECOM and JH Kelly contemporaneously noted that excavations for duct banks were hindering their daily work for much of the month of November and early December 2017 as set out below.

6.95 According to AECOM's November monthly report:

²⁴² [BURNEY000088005-BURNEY000088106] See AECOM Monthly Report for September 2017

Figure 6-30: Excerpt of AECOM's November Monthly Report²⁴³

6.96 By the December monthly report, AECOM reported:

Figure 6-31: Excerpt of AECOM's December Monthly Report²⁴⁴

6.97 It can also be seen in the above, that JH Kelly increased their manpower and added a second shift in an attempt to mitigate some of the incurred delay.

²⁴³ [BURNEY000111119-BURNEY000111235] See AECOM Monthly Report for November 2017

²⁴⁴ [BURNEY000246215-BURNEY000246343] See AECOM Monthly Report for December 2017

- 6.98 JH Kelly completed duct banks 27, 51, and 52 by 15 December 2017.²⁴⁵ The completion of these duct banks allowed JH Kelly to commence terminations and testing in the Auxiliary Building on 16 December 2017.²⁴⁶

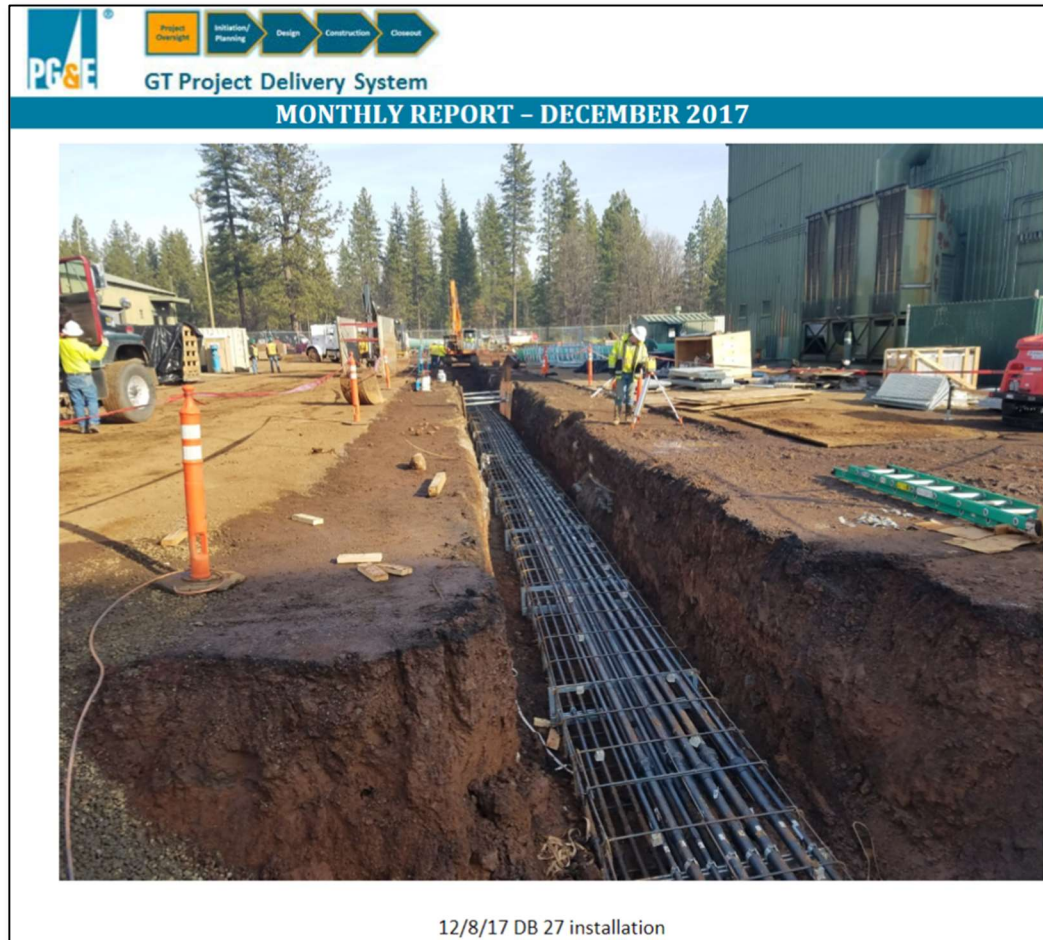


Figure 6-32: Progress photo for duct bank installation as at 8 December 2017²⁴⁷

4" Gas Line Damage

- 6.99 It is noted that portions of the duct bank work on the Project were halted after a JH Kelly subcontractor fuel truck struck a 4" gas line on 14 October 2017.^{248 249} AECOM reported this damage in its October 2017 monthly report as shown in the figure below.²⁵⁰

²⁴⁵ See As-Built Activity ID: ELEC00500 and ELEC00920 "Install UG Conduit DB-27 & DB-51" and "Install UG Conduit DB-52"

²⁴⁶ [JHK_BURNEY_00167348-JHK_BURNEY_00167354] See JH Kelly Daily Report of 16 December 2017

²⁴⁷ [BURNEY000246215-BURNEY000246343] See AECOM Monthly Report December 2017

²⁴⁸ See as-built schedule activity ID PIPE01560 "4-inch gas line damaged by collision with fuel truck"

²⁴⁹ See Exhibit 208 attached to Draft Lee deposition (which is the actual incident report of 14 October 2017)

²⁵⁰ [BURNEY000087398] AECOM October 2017 Monthly Report Page 41



Figure 6-33: Damaged 4" Gas Line from AECOM October 2017 Monthly Report²⁵¹

6.100 A blowdown and cross compression of the piping was required before construction could resume on 20 October 2017.²⁵²

6.101 As reported by JH Kelly in its daily report of hindrances ***"all work on east fence line has been put on hold by PGE for checking out damaged gas line and cross compression testing"***.²⁵³

6.102 As also reported in AECOM's schedule delay log:

"All work on the east and north east side of the station stopped due to the fuel truck hitting the 4" gas line. PG&E had to blowdown the line and replace the damaged valve. This effected the Demo work on the Main Gas line at Tie-in 22 and 37 locations and DB 7 excavation activities. The gas line valve was replaced by 10-16-17 and line was saved out. PG&E would not let AECOM continue any construction"

²⁵¹ [BURNEY000087398] AECOM October 2017 Monthly Report Page 41

²⁵² See as-built schedule activity ID PIPE01590 "Cross-Compression in Zone 1 before resuming Construction"

²⁵³ [JHK_BURNEY_00338468] JH Kelly daily report for 16 October 2017 page 5

activities on the east and North east side of the station until cross compression was completed on 10-20-17²⁵⁴

6.103 As the duct banks were on the actual critical path during this time period, I have attributed the 6 days of non-work time between 14 and 20 October as a JH Kelly delay as it was a JH Kelly subcontractor that damaged the valve and caused a shutdown of the majority of the Project.

Conclusion

6.104 As discussed above, JH Kelly did not commence the terminations in the Auxiliary Building until 16 December 2017. Given that JH Kelly planned to commence terminations in the Auxiliary building by 8 August 2017, this means that the Project was 130 calendar days in delay at this point in time (16 December 2017 – 8 August 2017 = 130 days). Considering the delay incurred in the previous time periods (i.e. 109 days), the Project lost an additional 25 days in this time period.

6.105 In my opinion, while the majority of this delay can be attributed to the added scope caused by PG&E's change in design criteria. 6 days of the delay was caused by the shutdown caused by the damaged gas line.

6.106 I note that this delay would likely have been greater had AECOM and JH Kelly not accelerated the work by increasing their manpower.

6.107 The table below summarizes the actual delay incurred in Phase 2 Window III. The delay during this time period is also illustrated in Figure 6-34 on the following page.

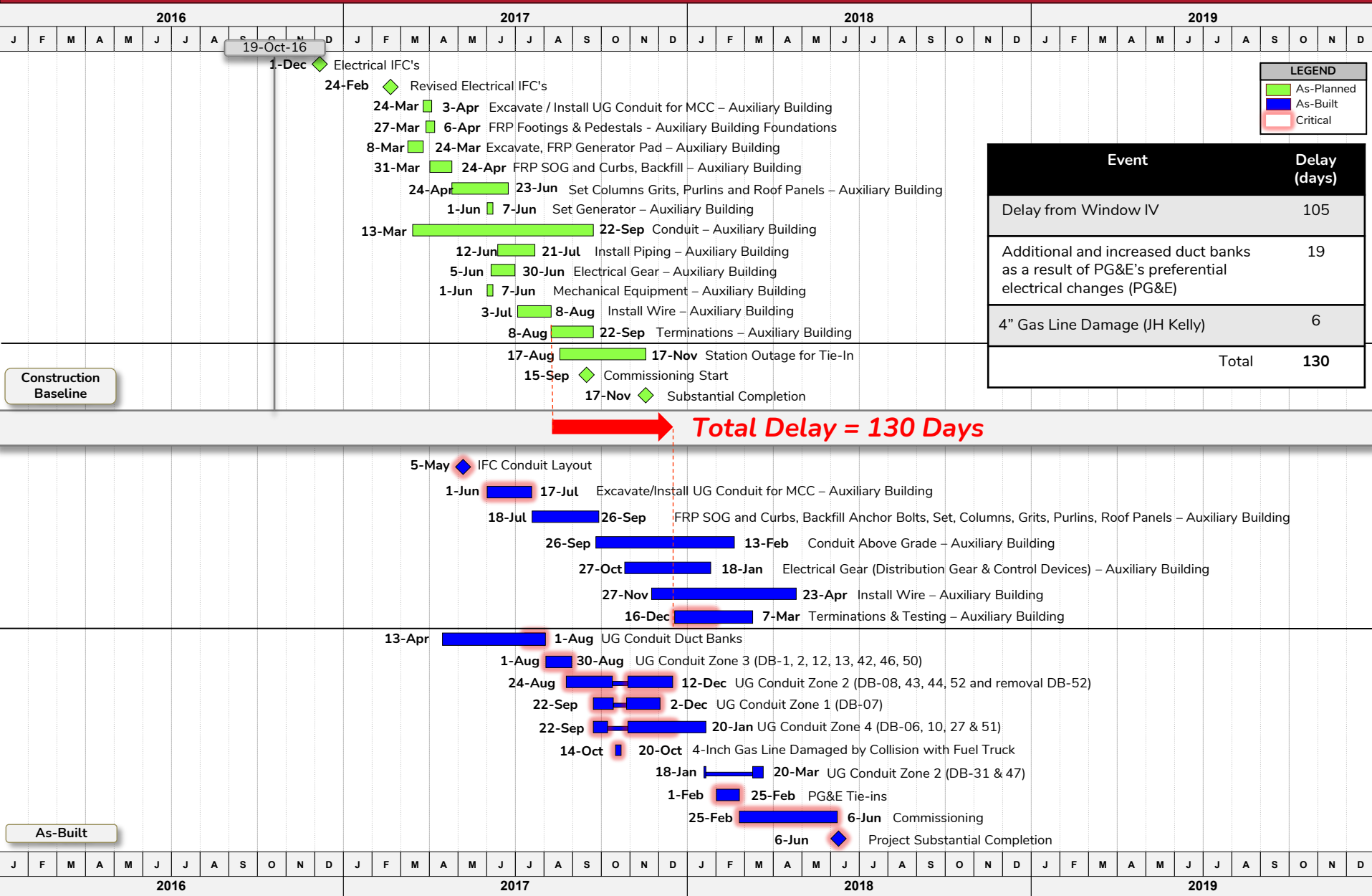
Phase 2 Window	Cause of Delay	Delay in Window (Days)
	Delays through Window II	105
III	Additional and increased duct banks as a result of PG&E's preferential electrical changes (PG&E)	19
III	4" Gas Line Damage (JH Kelly)	6
	Total	130

²⁵⁴ [AEC00610570] AECOM Schedule Delay Log

Burney Compressor Station K-2 Replacement Project

Phase II Window III – Installation of Underground Duct Banks

Figure 6-34



Phase 2 Window IV – Terminations and Testing (16 Dec 2017 to 2 Feb 2018)***Introduction***

- 6.108 After substantially completing the underground conduit in the duct banks, JH Kelly commenced the terminations and testing within the Auxiliary Building on 16 December 2017. Shortly thereafter, due to the upcoming holidays, the parties agreed to shut down the Project for a period of 12 days.
- 6.109 Upon returning, JH Kelly continued the termination and testing works in the Auxiliary Building. Although JH Kelly added shifts for this electrical work, they had inefficiencies pulling wire through the conduit and performing terminations. As a result, JH Kelly was only 30% complete with this work when the critical path shifted into Commissioning (i.e., Phase 3 on 2 February 2018).
- 6.110 In terms of critical delay in this time window:
- a) At the beginning of this time window (i.e., on 16 December 2017), the Project was 130 calendar days behind schedule;
 - b) According to the Construction Baseline Schedule, PG&E's tie ins were scheduled to commence on 5 September 2017;
 - c) In fact, PG&E did not actually commence its tie-ins until 1 February 2018 – 150 calendar days later than planned (1 February 2018 – 5 September 2017 = 150 days); and
 - d) The Project therefore was delayed **20 calendar days in this time period** (150 days – 130 days = 20 days).
- 6.111 From my review of the contemporaneous documents and the progress achieved during this time, the principal cause(s) of critical delay in this window appear to have been as follows:
- a) Agreed Project Shut Down; and
 - b) Inefficiencies pulling wire and performing terminations.

Agreed Project Shut Down

- 6.112 It is my understanding that the parties agreed to shut down the Project for a period of 12 calendar days between 22 December 2017 and 2 January 2018.²⁵⁵ It is also my understanding that this delay was agreed to be excusable from Liquidated Damages but non-compensable for extended general conditions.²⁵⁶

²⁵⁵ [BURNEY000246215-BURNEY000246343] (report), AECOM monthly report Dec 2017

²⁵⁶ [BURNEY000246215-BURNEY000246343 (report), BURNEY000246243 (pg. w/excerpt in report)] AECOM monthly report Dec 2017; IFC Conduit Layout on 27 March 2017

Pulling Wire and Performing Terminations.

6.113 As can be seen in the figure below, JH Kelly commenced terminations at the beginning of this window, but did not make substantial progress until after the Agreed Project Shut Down over the winter holidays.

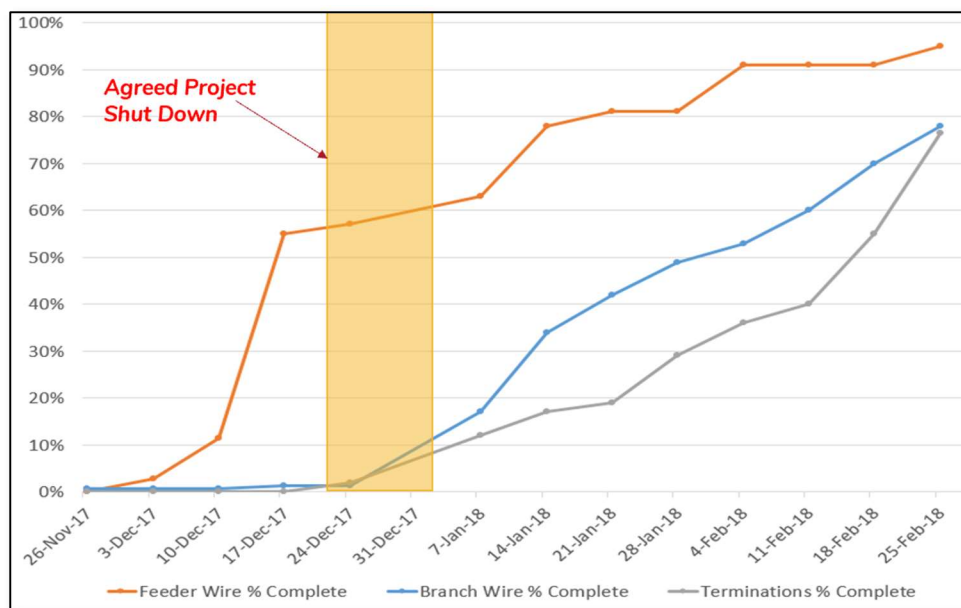


Figure 6-35: Progress for Wire and Terminations²⁵⁷

6.114 After recommending this work, it took longer than planned for JH Kelly to pull wire such that JH Kelly was only 30% complete with this work when the critical path shifted into Commissioning. While it is possible that some of this additional time was due to PG&E's preferential changes (i.e., added duct bank and conduit), I do not have the records available to me to determine how much, if any, time should be allocated to PG&E. Therefore, for purposes of this report, I have assumed all of the delay is due to JH Kelly as this was part of their scope to complete in a timely manner.

Conclusion

6.115 Of the 20 calendar days that were lost during this time period, 12 calendar days can be attributed to the agreed Project shut down. In my opinion, the remaining 8 days of delay can be attributed slower than planned progress pulling wire and completing the terminations.

6.116 The table below summarizes the actual delay incurred in Phase 2 Window IV. The delay during this time period is also illustrated in Figure 6-36 on the following page.

²⁵⁷ [BURNEY000371663] Progress as reported in AECOM's February 2018 monthly report quantities, Page 47/138



Report on Delay
Ted Scott
18 October 2021

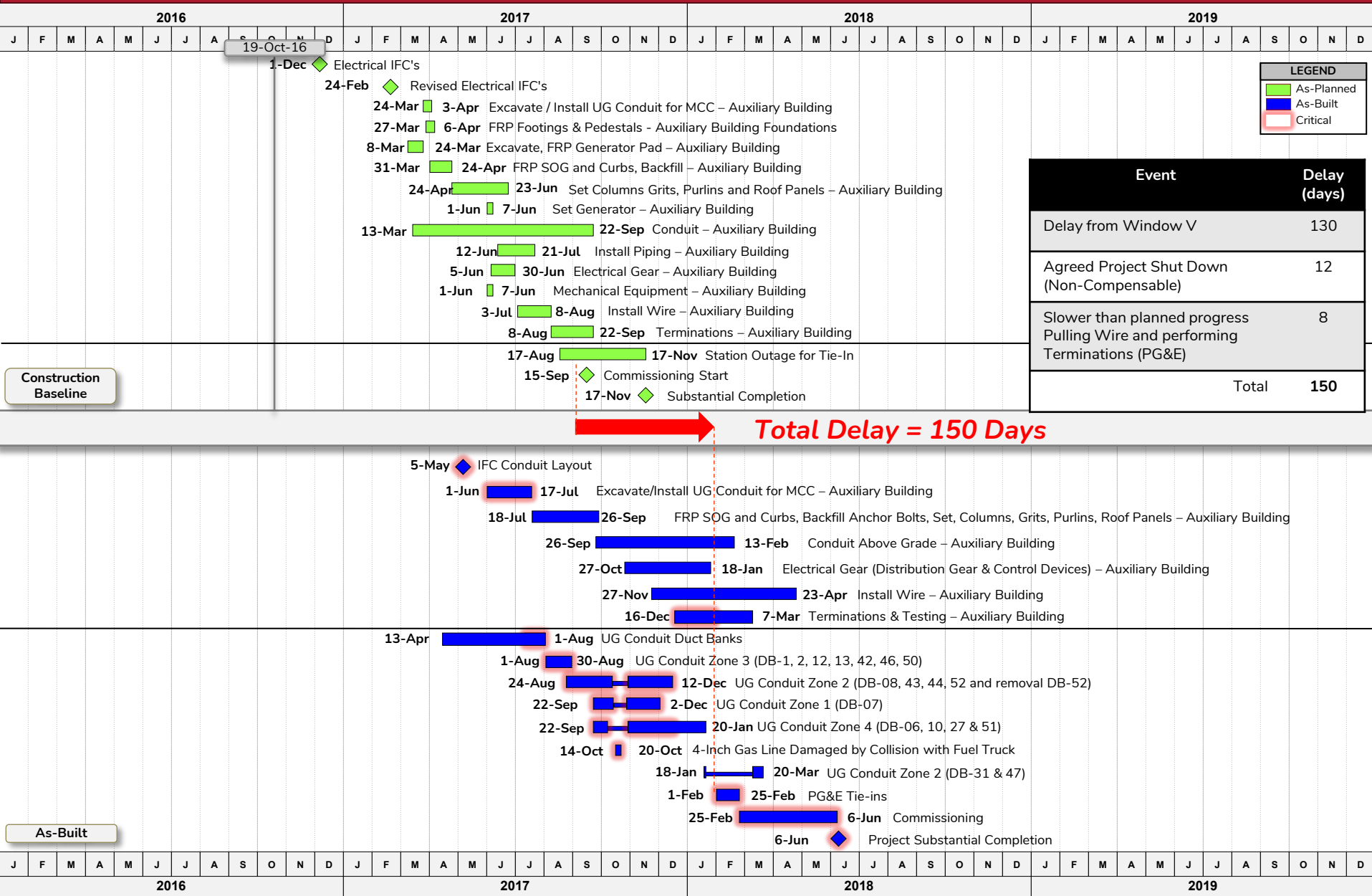
Phase 2 Window	Cause of Delay	Delay in Window (Days)
	Delays through Window III	130
IV	Agreed Project Shut Down (Not Compensable)	12
IV	Slower than planned progress Pulling Wire and Performing Terminations (JH Kelly)	8
Total		150

Burney Compressor Station K-2 Replacement Project

Phase II Window IV – Termination and Testing

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Figure 6-36





Conclusion of Analysis of Delay to Construction

6.117 As discussed above, at the end of the Construction period (i.e., 2 February 2018), the Project was 150 calendar days behind schedule. This attribution of this delay can be seen in the table below.

Window	Delay Description	PG&E	JHK	AECOM	Exc. Non-Comp	Cumulative Delay
I	PG&E's Preferential Changes to the Electrical Design and the conflict between the duct bank and the existing utility	32	32	0	0	64
II	Boulder Excavation	7	0	0	0	71
II	Additional Scope	19	0	0	0	90
II	Lack of Resources	0	15	0	0	105
III	Added Scope Duct Banks	19	0	0	0	124
III	4" Gas Line Damage	0	6	0	0	130
IV	Agreed Project Shut Down	0	0	0	12	142
IV	Slower than planned progress Pulling Wire and Performing Terminations	0	8	0	0	150
Total		77	61	0	12	150

7 Analysis of Delay to Commissioning

- 7.1 As discussed previously, I have divided my analysis of delay into three time periods. This section deals with the third time period which is for the Commissioning Phase of the Project and covers the period between 2 February 2018 and 6 June 2018.

The Planned Sequence of Commissioning

- 7.2 As is typical on oil and gas projects, as the Project neared Mechanical Completion, AECOM began to develop a Commissioning Schedule. As can be seen from the excerpt below, the schedule was formally submitted to PG&E in early February 2018 and is herein referred to as the “Commissioning Schedule”.

The critical path ran through the Auxiliary Building where extensive electrical work was ongoing. The planned schedule for remaining work is being carefully evaluated to account for actual progress and will incorporate a detailed commissioning schedule. This revised schedule was formally submitted early February 2018. Issues affecting the critical path this month include but are not limited to ongoing changes to the electrical design and impacts due to winter weather, extended overtime schedules and increased absenteeism, yet the current substantial completion date is being maintained until an analysis of the schedule is completed early February.

JH Kelly is on track to be mechanically complete in late February to allow commissioning activities to commence for multiple systems. It is anticipated the critical path will shift from construction installation to commissioning activities in February. After Substantial Completion and Station Startup, the critical path runs through the final civil work and paving, then demobilization and final completion documentation.

Figure 7-1 – Excerpt from AECOM’s January 2018 Monthly Report²⁵⁸

- 7.3 It is my understanding that PG&E did not comment on this schedule and therefore it is deemed to have been approved.
- 7.4 According to the Commissioning Schedule, AECOM planned to achieve Substantial Completion of the Project by 16 April 2018 – **150 days later than planned.**²⁵⁹ This matches the delay discussed at the end of Phase 2.
- 7.5 Also according to the Commissioning Schedule, there were two distinct paths of work to achieve Substantial Completion: one path was through the commissioning of the power systems; while the

²⁵⁸ [BURNEY000298833-BURNEY000298983] AECOM January 2018 Monthly Report

²⁵⁹ [BURNEY000298833-BURNEY000298983] See Commissioning Schedule

other path was through the tie-in to existing utilities so that gas could be brought into the station for initial compressor commissioning runs.

7.6 The path through the commissioning of the power system ran through the following activities:

- a) Completion of Terminations and Testing in the Auxiliary Building;
- b) Electrical Systems Turnover Packages;
- c) Commencement of UPS Commissioning;
- d) Control Systems Commissioning;
- e) K-1 Commissioning Runs and Tests (Compressor Performance Test); and
- f) Turnover to PG&E.

7.7 The path through bringing gas into the station ran through the following activities:

- a) PG&E Main Gas tie-ins;
- b) Soap and pressure Test;
- c) Punchlist and Turnover for Main Gas;
- d) Mechanical Systems Turnover Packages;
- e) Station Main Gas and Blowdown Commissioning;
- f) Initial Compressor Commissioning Runs;
- g) K-1 Commissioning Runs and Tests (Compressor Performance Test); and
- h) Turnover to PG&E.

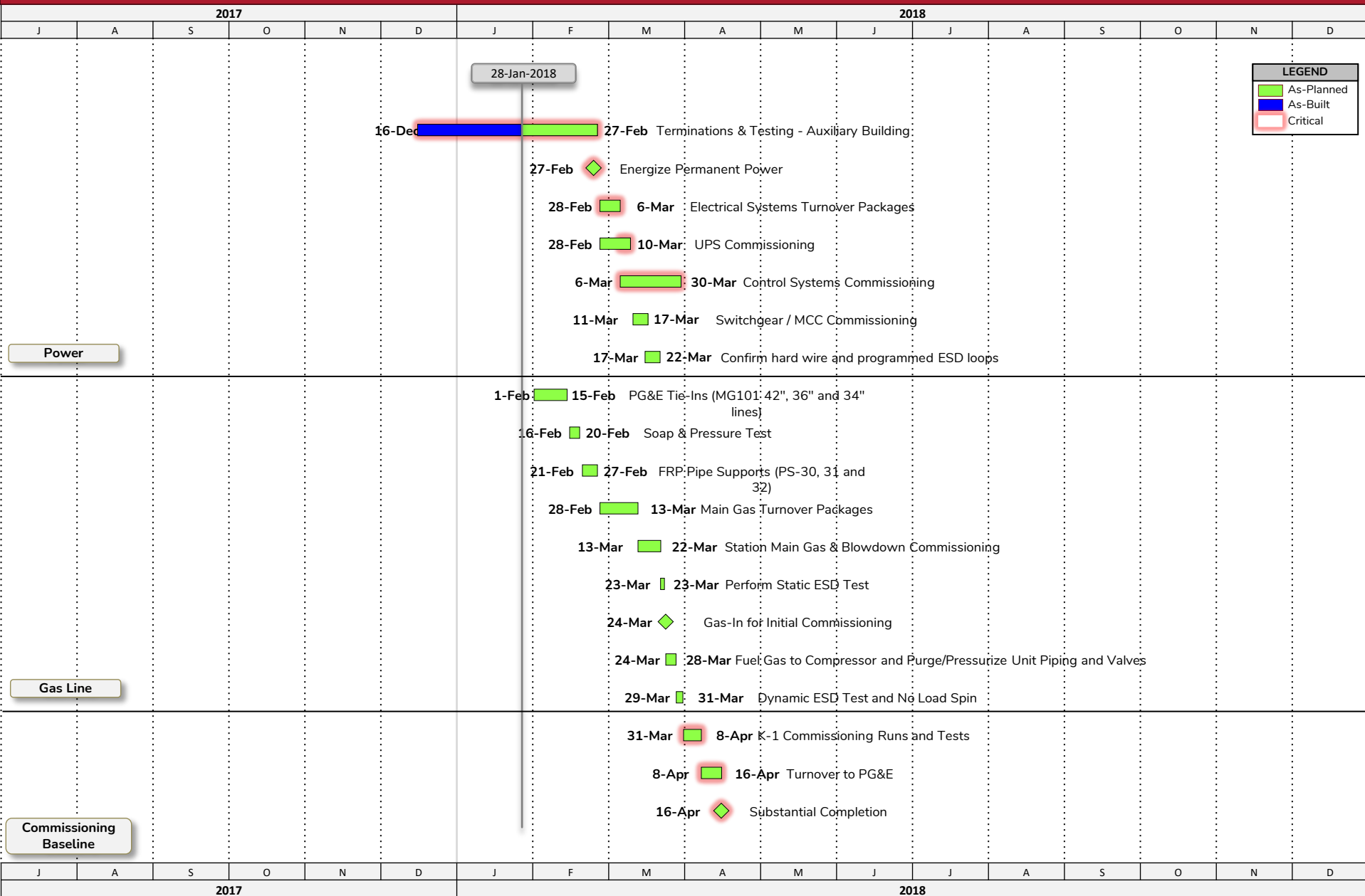
7.8 Both of the above paths can be seen in Figure 7-2 on the following page.

Burney Compressor Station K-2 Replacement Project

Commissioning Schedule

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Figure 7-2



The Actual Sequence of Commissioning

- 7.9 While JH Kelly was progressing the electrical works within the Auxiliary Building with added shifts and overtime, AECOM could not progress the main gas testing and commissioning until PG&E completed its tie-ins. These tie-ins connected the new Project piping into the existing utilities. According to the Commissioning Schedule, PG&E planned to commence these tie-ins on 1 February 2018 and complete them by 15 February 2018.
- 7.10 PG&E actually commenced its tie-ins (specifically the Main Gas – 101 42” line in Zone 1) as planned on 1 February 2018.²⁶⁰ However, due to a number of revisions to the Burney Tap tie-in spool (which concerns Change Order Request 262)²⁶¹, PG&E did not complete its tie-ins until 25 February 2018²⁶² – **10 days later than planned** (25 February 2018 – 15 February 2018 = 10 days).
- 7.11 While the tie-ins were being delayed, the electrical work progressed as planned. In fact, permanent power was achieved on 27 February 2018 as shown in the Commissioning Schedule.²⁶³
- 7.12 As a matter of principle, if there are two critical paths and one is able to progress (e.g., the power commissioning) and the other is not (e.g., the gas commissioning), then the work that is progressing almost immediately falls off the critical path and the path that is not progressing becomes the sole critical path. It is therefore my opinion that almost immediately upon the issuance of the commissioning schedule, as JH Kelly was progressing the electrical work, the critical path ran solely through bringing gas into the Project.
- 7.13 Once the main gas tie-ins were completed, AECOM performed the Soap test to ensure that there were no gas leaks through the new connection.²⁶⁴
- 7.14 Upon completing the Soap test, AECOM completed the main gas turnover packages which were required to begin the static Emergency Shut Down (ESD) test. The ESD system is designed to safely discharge gas in the event of an emergency.

²⁶⁰ See As-Built Schedule Activity ID PIPE00570 “Install W-MG101-42-FLD-01 Tie-Ins 01, 02 & MG-101-42-A & B by PG&E - Zone 1”

²⁶¹ See As-Built Schedule Activity ID COR00262D “Tie-In & NDE Burney Tap Spools Rev. 3 - by PG&E”

²⁶² [JHK_BURNEY_00171240-JHK_BURNEY_00171241 (Feb 19), JHK_BURNEY_00169251-JHK_BURNEY_00169252 (Feb 25)] JH Kelly Daily Report of 19 and 25 February 2018

²⁶³ See As-Built Schedule Activity ID BCS.800 “Permanent Power In to the Station”

²⁶⁴ See As-Built Schedule Activity ID BCS.910 “Soap and Pressure Test after Tie-In”

- 7.15 The Static ESD test started on 7 April and was planned to take 1 day. However, due to problems with the new fire suppression program, the test was not completed until 12 April 2018 – **20 days later than planned in the Commissioning Schedule**.²⁶⁵
- 7.16 Once the static ESD test was completed, AECOM planned to bring gas into the station for initial commissioning runs. However, on 13 April 2018, the ESD system recorded a fault signal from the Programmable Logic Controller (“PLC”) network which resulted in gas being discharged.²⁶⁶ After troubleshooting the system, a “mask” was put in place as a temporary fix to allow gas commissioning to proceed.²⁶⁷
- 7.17 On 18 April 2018, with the “mask” mitigation measure in place, gas was brought in for the initial commissioning runs (**25 days later than planned in the Commissioning Schedule**).²⁶⁸
- 7.18 With gas in the system, AECOM planned to perform the initial commissioning runs. However, due to a number of issues (including a problem with the generator wire harness and a damaged “witches’ hat” strainer) the 100-hour performance test was not performed until 13 May 2018 – **43 days later than planned in the Commissioning Schedule**.²⁶⁹
- 7.19 After commencing, the 100-hour performance test was interrupted on 15 May 2018 due to a power outage.²⁷⁰ As will be discussed, it was not until 22 May 2018, that AECOM could resume the 100 hour and 10-day performance tests.²⁷¹
- 7.20 Once testing was resumed, AECOM was able to complete the performance tests of the Compressor unit and achieve Substantial Completion on 6 June 2018 (**51 days later than planned in the Commissioning Schedule**).²⁷²
- 7.21 This as-built critical path is illustrated in Figure 7-3 on the following page.

²⁶⁵ See As-Built Schedule Activity ID COMM-70 “Perform Static ESD test”

²⁶⁶ [AEC00785331-AEC00785334 (entire doc), AEC00785331 (B), AEC00785333 (IV)] See AECOM Commissioning Plan of the Day for 14-Apr-18 section B and IV

²⁶⁷ [BURNEY000377900] See AECOM April 2018 monthly report page 23

²⁶⁸ [AEC00459957-AEC00459960 and AEC00390312-AEC00390315, AEC00459957 (4/18 sect I), AEC00390312 (4/19 sect. I)] See AECOM Commissioning Plan of the Day for 18 and 19-Apr-18 section I

²⁶⁹ [AEC00394617-AEC00394620 (entire doc), AEC00394618 (K)] See AECOM Commissioning Plan of the Day for 14-May-18 section K

²⁷⁰ [AEC00329747-AEC00329750, AEC00329748 (K)] See AECOM Commissioning Plan of the Day for 16-May-18 section K

²⁷¹ [AEC00373571-AEC00373573, AEC00373572 (sect VII)] See AECOM Commissioning Plan of the Day for 22-May-18 section VII

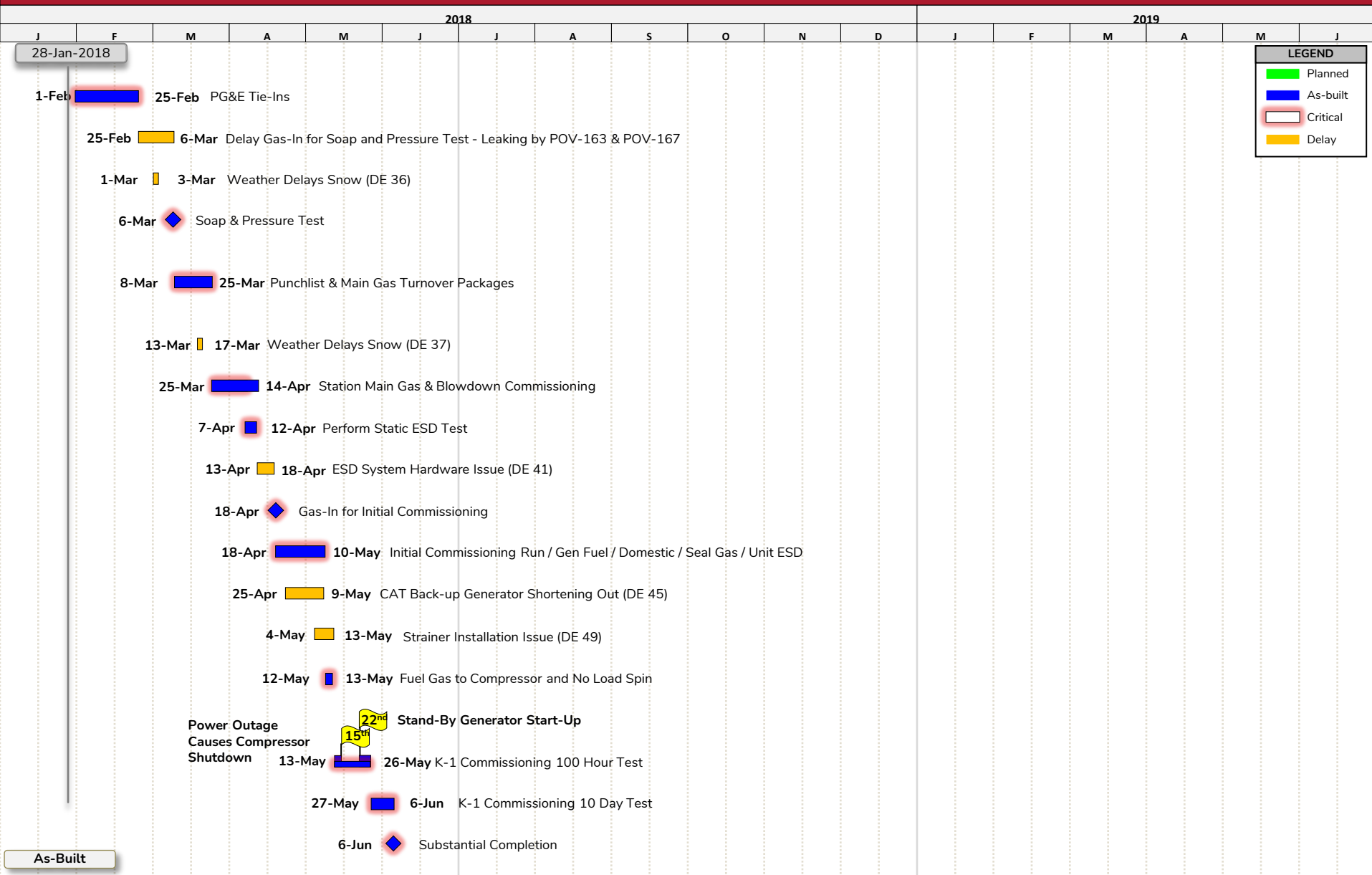
²⁷² [AEC00224561-AEC00224564] See AECOM Letter to PG&E dated 13-Jun-18

Burney Compressor Station K-2 Replacement Project

Actual Sequence of Commissioning

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Figure 7-3



Periods of Performance

7.22 To assist in the discussion and analysis of delays, I have broken the total period of performance into 8-time windows as can be seen in the table below. These time windows were established based on revisions to the planned sequence of commissioning, key events and shifts in the critical path.

Window	Description	Time Frame
I	PG&E Tie-Ins	2 Feb 2018 to 25 Feb 2018
II	Soap Test	25 Feb 2018 to 6 Mar 2018
III	Turnover of Main Gas	6 Mar 2018 to 7 Apr 2018
IV	Completion of Static ESD Test	7 Apr 2018 to 12 Apr 2018
V	Gas-In for Initial Commissioning Runs	12 Apr 2018 to 18 Apr 2018
VI	Initial Commissioning Runs	18 Apr 2018 to 13 May 2018
VII	Completion of 100-hour Test	13 May 2018 to 26 May 2018
VIII	Substantial Completion	26 May 2018 to 6 Jun 2018

7.23 I discuss the above time periods in detail below and for each one I consider:

- a) The start and finish date of that window and the critical delay at the start and finish date of each window;
- b) The critical path during each window;
- c) The performance of the works during each period; and
- d) The primary cause(s) of delay during each window.

Phase 3 Window I – PG&E Tie-Ins (2 Feb 2018 to 25 Feb 2018)

Introduction

- 7.24 As discussed previously, it is my opinion that immediately after the issuance of AECOM's Commissioning schedule, the critical path ran solely through the activities necessary to bring gas into the plant and specifically through PG&E's tie-ins to the main gas line.
- 7.25 In terms of critical delay in this time window:
- a) The beginning of this time window, (i.e., on 2 February 2018), is the date of the Commissioning Schedule;
 - b) According to the Commissioning Schedule, AECOM planned to have PG&E complete its tie-ins by 15 February 2018 to allow for the Soap Test of the main gas line;²⁷³
 - c) As it turns out, PG&E did not complete the tie-ins until 25 February 2018 – **10 calendar days later than planned** (25 February 2018 – 15 February 2018 = 10 days);²⁷⁴ and
 - d) The Project therefore was delayed **10 calendar days in this time period**.
- 7.26 From my review of the contemporaneous documents and the progress achieved during this time, the principal cause(s) of critical delay in this window appear to have been as follows:
- a) Late completion of PG&E tie-ins

Late Completion of PG&E tie-ins

- 7.27 At the Burney Compressor Station, there are two parallel pipelines (L-400 and L-401) which deliver gas into the station. To begin commissioning for the main gas system, various "tie-ins" needed to be made to connect the new compressor into the existing network. The tie-in spool is a short segment of pipe which joins the new pipe to existing main gas pipe.
- 7.28 According to the Commissioning Schedule, PG&E was required to perform several tie-ins which would allow for AECOM to perform the soap and Pressure test. Specifically, these tie-ins were located at the terminus where gas is delivered into the new compressor unit system.²⁷⁵
- 7.29 On or around 19 February 2018, it was discovered that the Burney tap tie-in spool needed to be re-routed to avoid conflicting with the existing main gas pipe (which apparently was in a different

²⁷³ See Commissioning Schedule Activity ID:

²⁷⁴ [JHK_BURNEY_00169251-JHK_BURNEY_00169252] JH Kelly daily report of 25 February 2018

²⁷⁵ See As-Built Schedule Activity ID BCS.590, BCS.900

location than originally thought).²⁷⁶ As a result, the original pipe fabricated by JH Kelly needed to be cut and field coated by Bernhard.²⁷⁷ This re-routing is shown in red in the figure below and the costs were captured in JH Kelly's COR 262.²⁷⁸

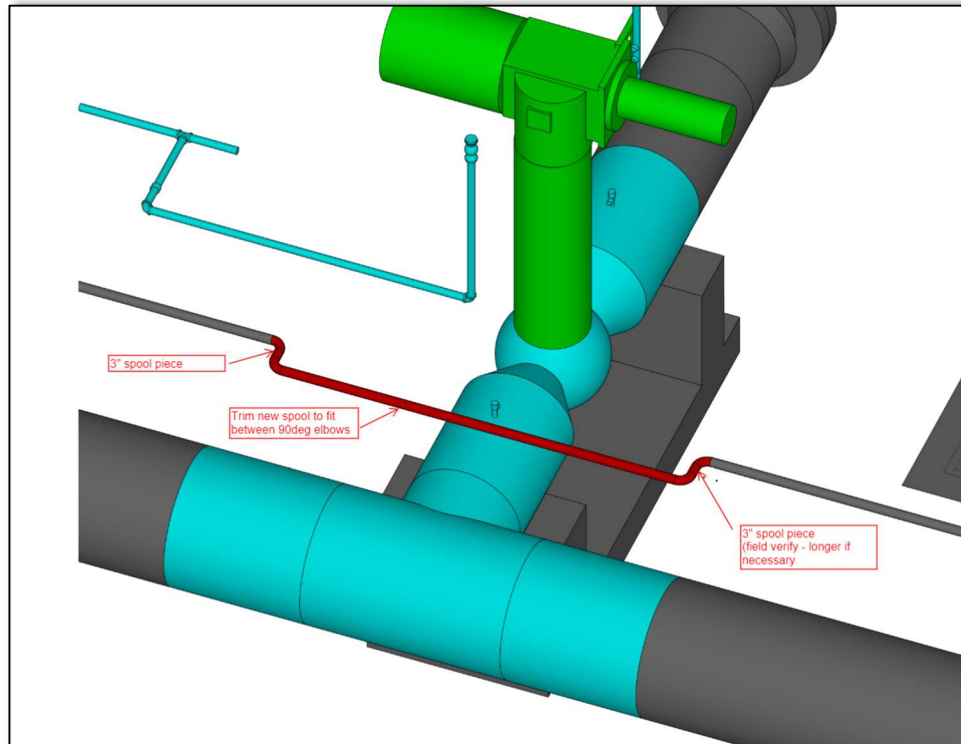


Figure 7-4 - Burney tap tie-in spool from RFI-222²⁷⁹

- 7.30 Due to the COR 262 revisions, the fabrication and hydrotesting for the Burney Tap tie-in spool were not completed until at least 23 February 2018.²⁸⁰
- 7.31 JH Kelly was assisting PG&E with its tie ins until 25 February 2018.²⁸¹ However, PG&E supplied its own contractor for the welding associated with these tie-ins and is my understanding that the delay is not the responsibility of JH Kelly or AECOM.²⁸²
- 7.32 I also note that the Burney Tap tie-in spool modifications were included in AECOM's Change Order 7 to PG&E.

²⁷⁶ See As-Built Schedule Activity ID "COR00262A" Fabrication - COR 262 - Burney Tap Tie-In Spool Rev. 3

²⁷⁷ [AEC00915219-AEC00915230] RFI0222_PCO0148_BURNEY TAP FINAL CHANGES_R1.pdf

²⁷⁸ [AEC00221044-AEC00221045] COR 262 BURNEY TAP FINAL CHANGES.pdf

²⁷⁹ [AEC00221048] See COR 262 attachment and email AECOM 2-19-18 Email Revise Sketch (1).pdf

²⁸⁰ See As-Built Schedule activity ID COR00262D

²⁸¹ [JHK_BURNEY_00169251-JHK_BURNEY_00169252] JH Kelly daily report of 25 February 2018

²⁸² [BURNEY000371642] AECOM monthly report of February 2018 page 23

Conclusion

- 7.33 As discussed above, PG&E did not complete the tie-ins until 25 February 2018. Given that these tie-ins were to be completed by 15 February 2018 to allow for the Soap test, the Project was delayed an additional 10 days in this window (25 February 2018 – 15 February 2018 = 10 days).
- 7.34 As it is my understanding that the reason the tie-in spool needed to be rerouted was due to the existing main gas pipe being in the wrong location, I have attributed this delay to PG&E.
- 7.35 The table below summarizes the actual delay incurred in Phase 3 Window I. The delay during this time period is also illustrated in Figure 7-5 on the following page.

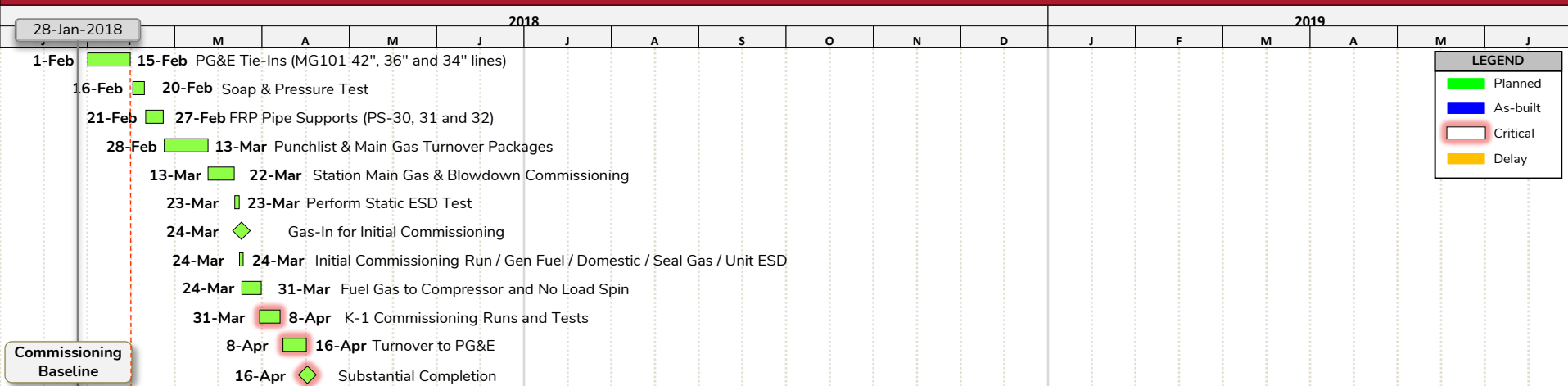
Phase 3 Window	Cause of Delay	Delay in Window (Days)
I	Late Completion of PG&E tie-ins (PG&E)	10
Total		10

Burney Compressor Station K-2 Replacement Project

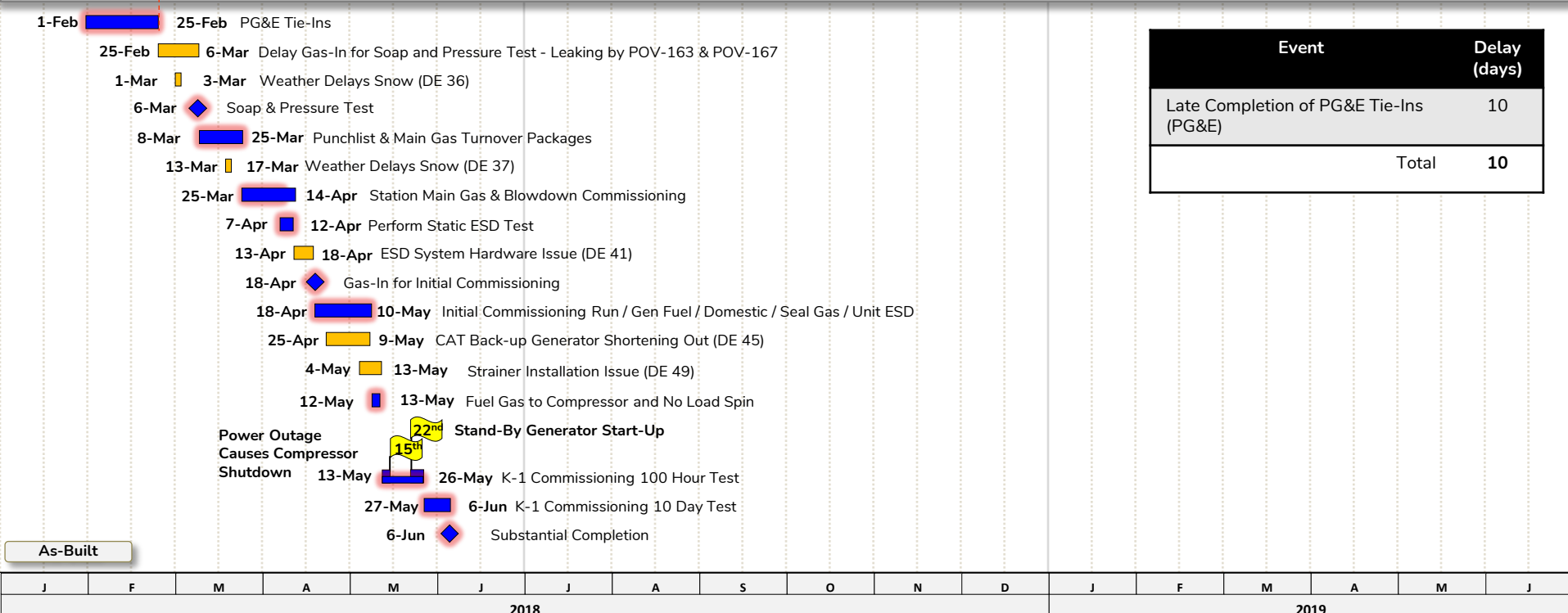
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Phase III Window I – PG&E Tie-Ins

Figure 7-5



Total Delay = 10 Days



Event	Delay (days)
Late Completion of PG&E Tie-Ins (PG&E)	10
Total	10

Phase 3 Window II – Soap Test (25 Feb 2018 to 6 Mar 2018)***Introduction***

- 7.36 AECOM planned to perform the Soap test immediately after PG&E completed its tie-ins. However, AECOM was unable to complete the Soap test as planned in the Commissioning Schedule due to leaks at valves POV-163 and POV-167 and weather delays.
- 7.37 In terms of critical delay in this time window:
- a) At the beginning of this time window (i.e., on 25 February 2018), the Project was 10 calendar days behind the Commissioning schedule (for a total delay of 160 calendar days);
 - b) According to the Commissioning Schedule, AECOM planned to complete the Soap test by 20 February 2018;²⁸³
 - c) As it turns out, AECOM was not able to complete the Soap test until 6 March 2018 – **14 calendar days later than planned in the Commissioning Schedule** (6 March 2018 - 20 February 2018 = 14 days); and
 - d) The Project was therefore delayed **an additional 4 calendar days in this time period** (14 days – 10 days = 4 days).
- 7.38 From my review of the contemporaneous documents and the progress achieved during this time, the principal cause(s) of critical delay in this window appear to have been as follows:
- a) Leaks at Valves V-163 and V-167; and
 - b) Weather Delays.

Leaks at Valves V-163 and V-167

- 7.39 Once PG&E completed the tie-ins at the end of the last window, the Soap test was scheduled for 25 February 2018. However, this was cancelled when a blow-by was observed at valves V-163 & V-167.²⁸⁴ This delay event is discussed in the excerpt below from AECOM's April 2018 monthly report.²⁸⁵

²⁸³ See Commissioning Schedule Activity ID: BCS.920 "Gas In for Soap and Pressure Test"

²⁸⁴ [BURNEY000079669] AECOM March 2018 monthly report page 3

²⁸⁵ [BURNEY000377900] AECOM April 2018 monthly report page 23

MONTHLY REPORT – APRIL 2018**TESTING & COMMISSIONING**

- Initial Gas-In

Recap: Gas-In was planned for February 25, 2018, to perform the soap test of the MG system but, was canceled when gas blow-by was observed at valves V-163 and V-167. Camserv came to the site on March 27th to inspect the valves and determined the valves were operating normally. PG&E and AECOM agreed to reschedule the Gas-In soap test for March 6, 2018. Gas-In for soap test was completed on March 6, 2018.

Figure 7-6 – AECOM Monthly Report for April 2018²⁸⁶

Blasting, coating and backfilling activities on blow down lines at the east side of the station have been completed. Backfilling activities are 50% complete at GOV-1 but are on hold due to valve leaks since April 23, 2018.

Station blowdown valves V-73, POV-P, V-74, and POV-C had been reported with seat leaks. Camserv suspected that the stops on the gear/actuator were not set properly. Camserv had reset the stops. Also, Camserv had tried to blowdown the seat through the body bleed to clear out any debris that might have caused these leakages. The leaks still occurred on these valves. The replacement valves were ordered. These valves that failed were previously OQ'd and all passed the PG&E test requirements.

Figure 7-8 – AECOM Monthly Report for April 2018²⁸⁷

7.40 As can be seen from the above, Cameron, who is the supplier of the valves, inspected the valves on 27 February 2018 and determined that the valves were operating normally.²⁸⁸

7.41 As Cameron was responsible for the quality of the valves, and without any more information, I have attributed the delay to them.

Weather Delay

7.42 Although Cameron determined that the valves were operating normally, the Soap test could not immediately proceed due to a forecasted snowstorm. As can be seen in the site progress photo below, it began snowing on 26 February 2018.

²⁸⁶ [BURNEY000377900] AECOM April 2018 monthly report page 23

²⁸⁷ [BURNEY000377901] AECOM April 2018 monthly report page 24

²⁸⁸ [AEC00610570] See AECOM Delay Event Log



Figure 7-9 - Site Conditions during February 2018 Snowstorm²⁸⁹

7.43 Both PG&E and AECOM agreed to reschedule the Soap Test until 6 March 2018.

7.44 According to the Project records, the Soap test was successfully performed on 6 March 2018.²⁹⁰

Conclusion

7.45 As discussed above, the Soap test was successfully performed on 6 March 2018. Given that the Soap test was planned for 20 February 2018 in the Commissioning Schedule, this work was delayed a total of 14 days (6 March 2018 – 20 February 2018 = 14 days). Considering the 10 days of delay in the previous commissioning window, 4 days were lost during this period of time (14 days – 10 days = 4 days).

7.46 In my opinion, the leaks at valves V-163 and V-167 observed on 25 February 2018 caused 1 day of critical delay to the critical Soap Test. As the valve supplier, Cameron was responsible for the quality of the valves. I have attributed the delay to them.

²⁸⁹ [BURNEY000371617-BURNEY000371749] See AECOM February 2018 Monthly Report

²⁹⁰ See As-Built Schedule activity ID BCS.920

7.47 The remaining critical delay of 3 days in this time period is attributed to the snowstorm and it is noted that weather is not compensable under AECOM's contract.

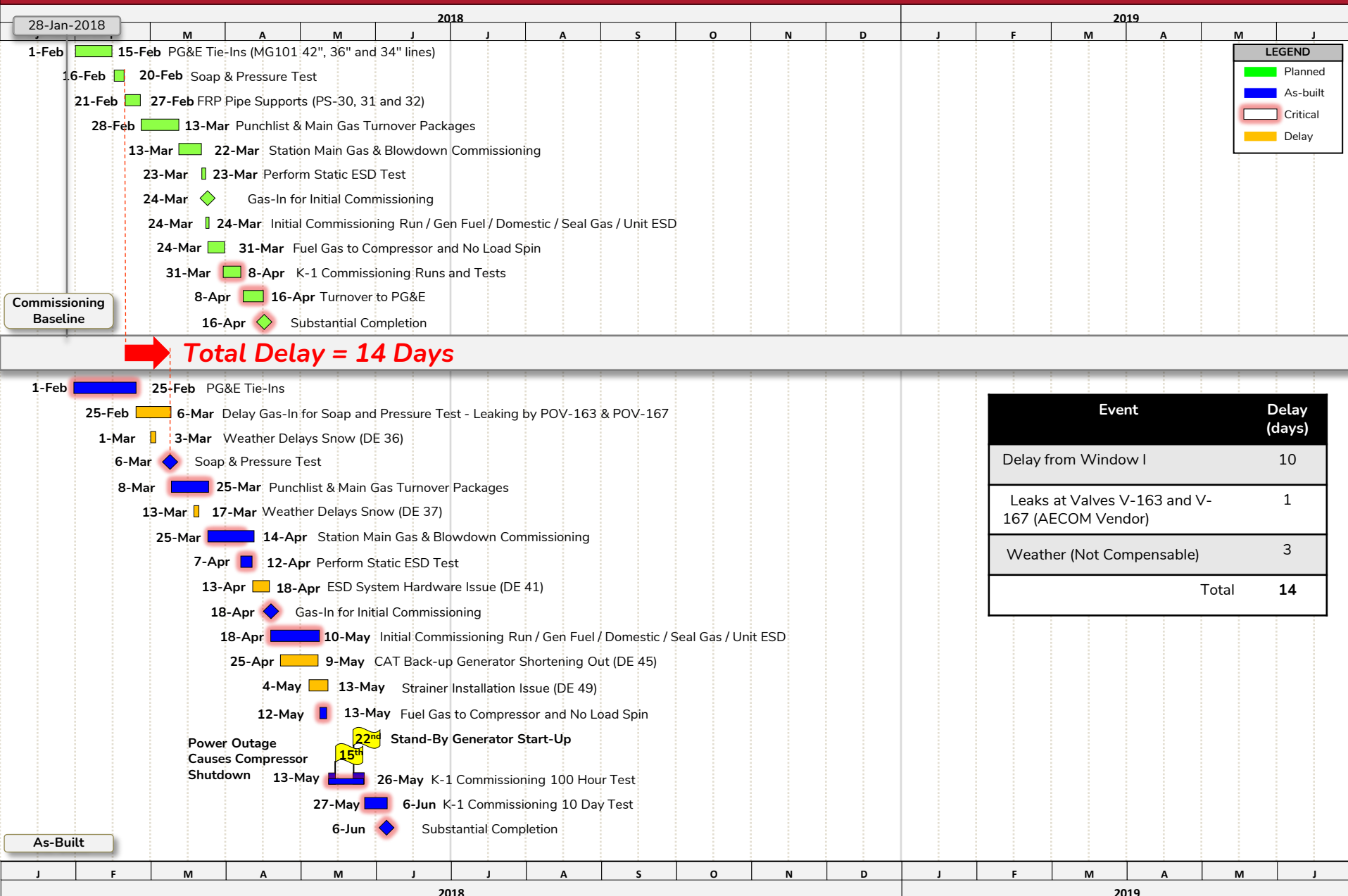
7.48 The table below summarizes the actual delay incurred in Window II. The delay during this time period is also illustrated in Figure 7-10 on the following page.

Phase 3 Window	Cause of Delay	Delay in Window (Days)
	Delays through Phase 3 Window I	10
II	Leaks at Valves V-163 and V-167 (AECOM Vendor)	1
II	Weather Delays (Not Compensable)	3
	Total	14

Burney Compressor Station K-2 Replacement Project

Phase III Window II – Soap Test

Figure 7-10



Phase 3 Window III – Turnover of Main Gas (6 Mar 2018 to 7 Apr 2018)***Introduction***

- 7.49 Once the Soap test was performed, AECOM completed the turnover and punchlist of the main gas line. The turnover packages for the main gas line were required to confirm that the main gas system and controls were ready for commissioning and would allow AECOM to perform the static ESD test.
- 7.50 As it turns out, AECOM's work was again interrupted by weather delays and they were not able to commence the static ESD test until 7 April 2018.
- 7.51 In terms of critical delay in this time window:
- a) At the beginning of this time window (i.e., on 6 March 2018), the Project was 14 calendar days behind the Commissioning Schedule (and a total of 164 calendar days in delay);
 - b) According to the Commissioning Schedule, AECOM planned to perform the Static ESD Test by 23 March 2018;²⁹¹
 - c) AECOM was not able to commence the Static ESD Test until 7 April 2018 – **15 calendar days later than planned in the Commissioning Schedule** (7 April 2018 - 23 March 2018 = 15 days); and
 - d) The Project was therefore delayed **an additional 1 calendar day in this time period** (15 days – 14 days = 1 day).
- 7.52 From my review of the contemporaneous documents and the progress achieved during this time, the principal cause(s) of critical delay in this window appear to have been as follows:
- a) Weather Delay

Weather Delay

- 7.53 While the Soap test was completed at the end of the last window, the critical gas turnover activities were impacted by weather delays from 13 March to 17 March 2018.²⁹²
- 7.54 JH Kelly noted in its daily reports for 14 and 15 March that snow hindered their crews from getting to work on welding the gas tie-ins as shown in the excerpt below.²⁹³

²⁹¹ See Commissioning Schedule Activity ID: COMM-70 "Perform Static ESD test"

²⁹² [BURNEY000079666-BURNEY000079793] See AECOM March 2018 Monthly Report

²⁹³ [JHK_BURNEY_00160010-JHK_BURNEY_00160011 (March 14), JHK_BURNEY_00160013-JHK_BURNEY_00160014 (March 15)] JH Kelly Daily Report of 14 and 15 March 2018

HINDRANCES TO WORK:

Heavy Rain all day caused the jobsite to become muddy. GC could not perform power gas tie ins due to standing water in the excavations. Coating crews had to relocate due to standing water in excavations.

Figure 7-11 – JH Kelly Daily report work hindrances on 13 March 2018²⁹⁴

7.55 Additionally, it is noted on 16 and 17 March 2018 that its subcontractors work was shut down due to snow.²⁹⁵ The weather conditions at the site are shown in AECOM's March 2018 monthly report as excerpted below.²⁹⁶

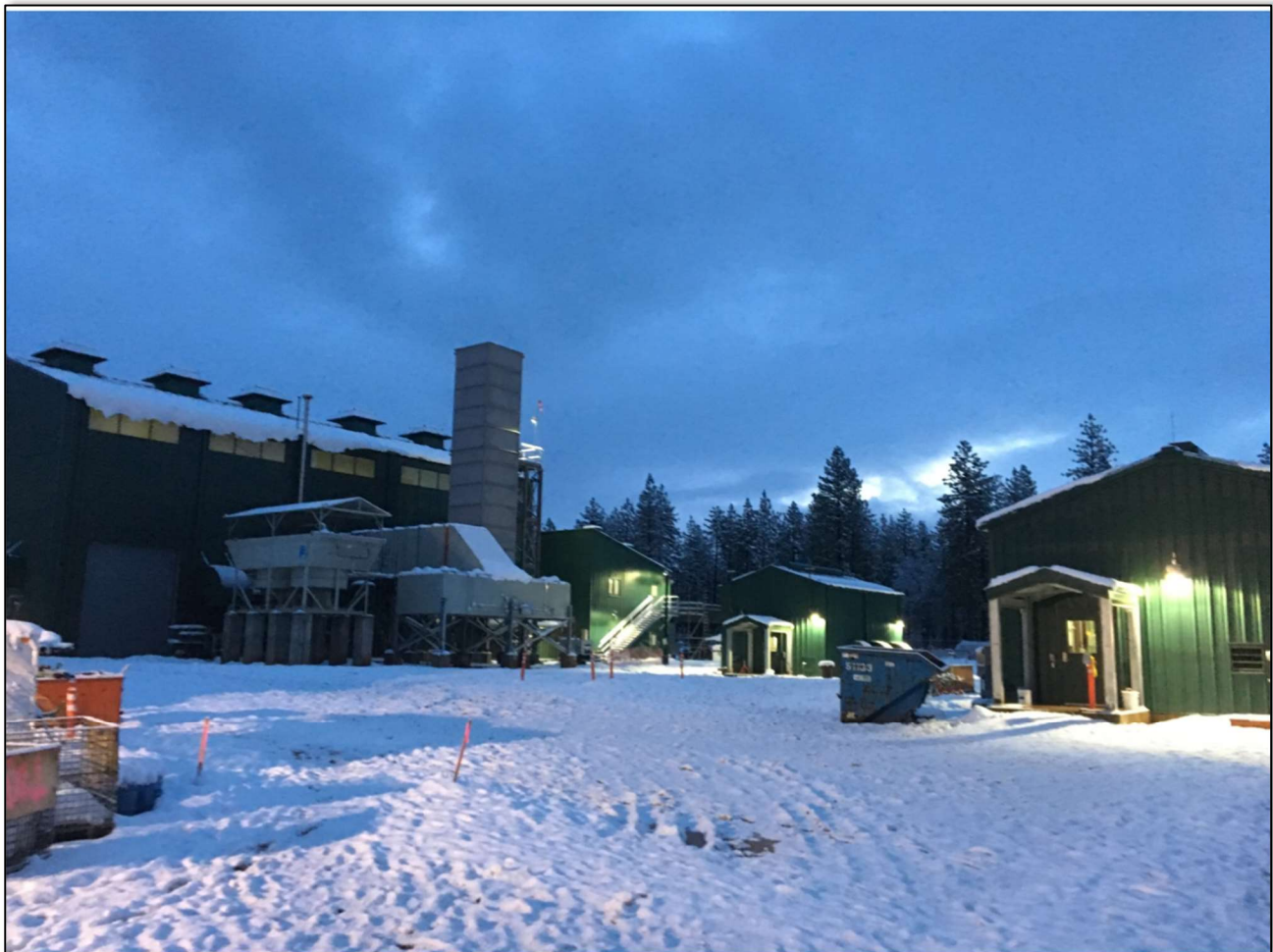


Figure 7-12 - AECOM Monthly Report Photo dated 20 March 2018²⁹⁷

²⁹⁴ [JHK_BURNEY_00337244-JHK_BURNEY_00337245] JH Kelly Daily Report of 13 March 2018

²⁹⁵ [JHK_BURNEY_00160016-JHK_BURNEY_00160017 (March 16), JHK_BURNEY_00160019-JHK_BURNEY_00160020 (March 17)] JH Kelly Daily Report of 16 and 17 March 2018

²⁹⁶ [BURNEY000079700] AECOM Monthly Report page 35 Progress Photo labeled as of 20 March 2018

²⁹⁷ [BURNEY000079700] AECOM Monthly Report page 35 Progress Photo labeled as of 20 March 2018

Conclusion

- 7.56 Given that the static ESD Test was planned to be completed by 23 March 2018, this test was delayed a total of 15 days against the Commissioning Schedule (7 April 2018 - 23 March 2018 = 15 days). Considering the 14 days of delay to the previous commissioning window, 1 day was lost during this time period due to weather (15 days – 14 days = 1 day).
- 7.57 The table below summarizes the actual delay incurred in Window III. It is again noted that weather is not compensable under AECOM's contract. The delay during this time period is also illustrated in Figure 7-13 on the following page.

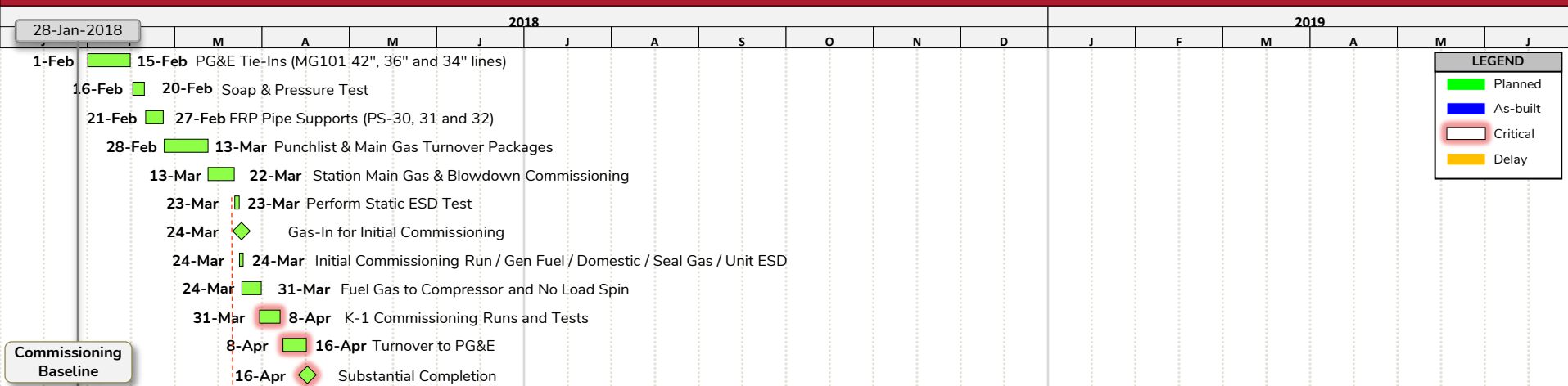
Phase 3 Window	Cause of Delay	Delay in Window (Days)
	Delays through Window II	14
III	Weather Delays (Not Compensable)	1
Total		15

Burney Compressor Station K-2 Replacement Project

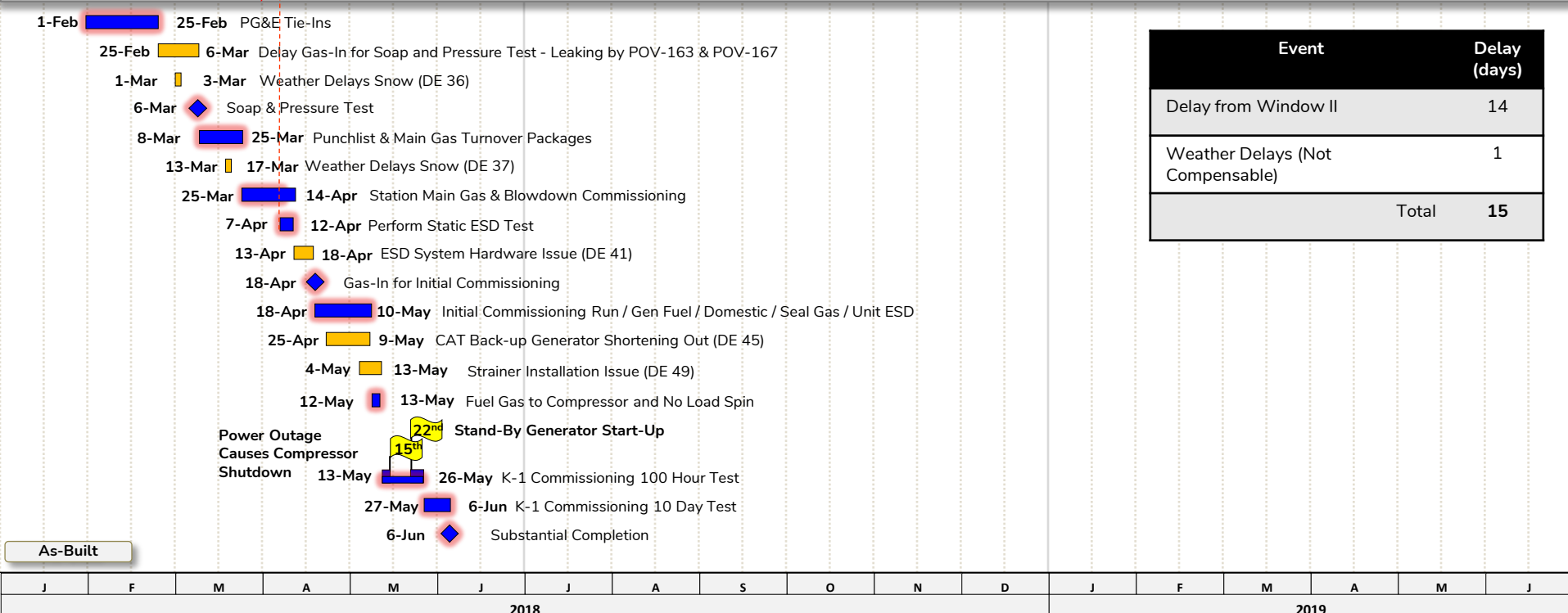
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Phase III Window III – Turnover of Main Gas

Figure 7-13



Total Delay = 15 Days



Event	Delay (days)
Delay from Window II	14
Weather Delays (Not Compensable)	1
Total	15

Phase 3 Window IV – Completion of Static ESD Test (7 Apr 2018 to 12 Apr 2018)***Introduction***

- 7.58 Once the main gas turnover and punchlist was completed, AECOM planned to perform the Static ESD test in 1 day.
- 7.59 As it turns out, due to a delay caused by an updated fire suppression system, it actually took 6 days to successfully perform the Static ESD test and it was therefore not completed until 12 April 2018.²⁹⁸
- 7.60 In terms of critical delay in this time window:
- a) At the beginning of this time window (i.e., on 7 April 2018), the Project was 15 calendar days behind the Commissioning Schedule (and a total of 165 calendar days in delay);
 - b) According to the Commissioning Schedule, AECOM planned to complete the Static ESD Test by 23 March 2018;²⁹⁹
 - c) AECOM was not able to complete the Static ESD Test until 12 April 2018 – **20 calendar days later than planned** (12 April 2018 - 23 March 2018 = 20 days); and
 - d) The Project was therefore delayed an **additional 5 calendar days in this time period** (20 days – 15 days = 5 days).
- 7.61 From my review of the contemporaneous documents and the progress achieved during this time, the principal cause(s) of critical delay in this window appear to have been as follows:
- a) COSCO Updated Fire Suppression Program

Updated Fire Suppression Program

- 7.62 The Static ESD Test is an element of the Emergency Shut Down safety system of the Burney Compressor Station.
- 7.63 On 4 April 2018, COSCO (AECOM's fire detection and suppression system contractor) received an updated fire suppression system.³⁰⁰ On 5 April 2018, COSCO tested this program and found problems associated with the train recycle and anti-surge valves as shown in the figure below.³⁰¹

²⁹⁸ [BURNEY000377900] See AECOM April 2018 monthly report page 23

²⁹⁹ See Commissioning Schedule Activity ID: COMM-70 "Perform Static ESD test"

³⁰⁰ [BURNEY000377900] See AECOM April 2018 monthly report page 23

³⁰¹ [BURNEY000377900] See AECOM April 2018 monthly report page 23

- ESDs

On April 4th, COSCO received the updated fire suppression program and upon testing it on April 5th, there were problems found with the program. The train recycle and anti-surge valves were found to have issues on April 6th. This affected the Gas-In Plan for Saturday, April 7th. On Monday, April 9th, the new program was installed and tested without any problems, making the system ready for pre-commissioning activities related to the ESD system. Both valve issues were resolved on Tuesday the 10th of April. The ESD system testing was completed on April 12, 2018.

Figure 7-14 - AECOM April 2018 Monthly Report³⁰²

7.64 According to the Project records, it was not until 9 April 2018 that the new program was installed with the error corrected.³⁰³

7.65 Due to the updated fire suppression system, the Static ESD test was not completed until 12 April 2018.³⁰⁴

Conclusion

7.66 As discussed above, the Static ESD test was not completed until 12 April 2018. Given that the Static ESD test was to be completed by 23 March 2018, this work was a total of 20 days in delay against the Commissioning Schedule (12 April 2018 – 23 March 2018 = 20 days). Considering the 15 days of delay to the previous commissioning window, 5 days was lost during this time period.

7.67 In my opinion this delay was due to the updated fire suppression system (20 days – 15 days = 5 days). As COSCO was responsible for the Fire Suppression Program, I have attributed the delay to them.

7.68 The table below summarizes the actual delay incurred in Window IV. The delay during this time period is also illustrated in Figure 7-15 on the following page.

Phase 3 Window	Cause of Delay	Delay in Window (Days)
	Delays through Phase 3 Window III	15
IV	Updated Fire Suppression Program (AECOM Vendor)	5
	Total	20

³⁰² [BURNEY000377900] AECOM April 2018 monthly report page 23

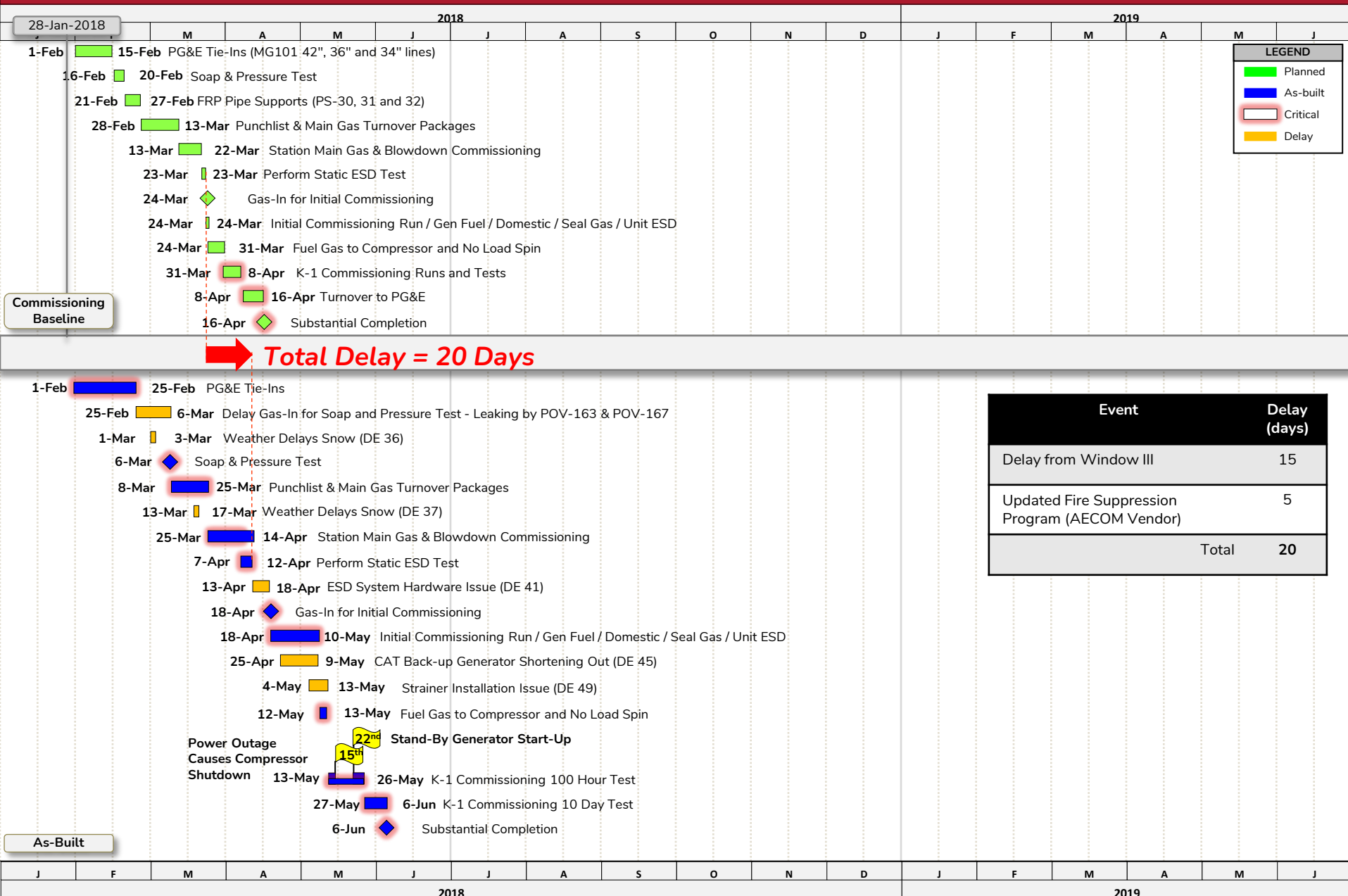
³⁰³ [AEC01064094-AEC01064097] See Commissioning Plan of the Day for 9 April

³⁰⁴ [BURNEY000377900] See AECOM April 2018 monthly report page 23

Burney Compressor Station K-2 Replacement Project

Phase III Window IV – Completion of Static ESD Test

Figure 7-15



Phase 3 Window V – Gas-In for Initial Commissioning Runs (12 Apr 2018 to 18 Apr 2018)

Introduction

- 7.69 Once the Static ESD test had been performed, the plant was ready for initial commissioning runs with main gas. However, and as will be discussed, additional hardware issues were identified with the ESD system that consequently delayed Gas-In. Although this issue was not resolved within this window, a mitigation measure was put in place to allow for Gas-In during this time.
- 7.70 In terms of critical delay in this time window:
- a) At the beginning of this time window (i.e., on 12 April 2018), the Project was 20 calendar days behind the Commissioning Schedule (and a total of 170 calendar days in delay);
 - b) According to the Commissioning Schedule, AECOM planned to achieve Gas-In for the initial commissioning runs by 24 March 2018;³⁰⁵
 - c) Due to hardware issues, AECOM was not able to get Gas-In for the initial commissioning until 18 April 2018 – **25 calendar days later than planned** in the Commissioning Schedule (18 April 2018 - 24 March 2018 = 25 days); and
 - d) The Project was therefore delayed **an additional 5 calendar days in this time period** (25 days - 20 days = 5 days); and
- 7.71 From my review of the contemporaneous documents and the progress achieved during this time, the principal cause(s) of critical delay in this window appear to have been as follows:
- a) ESD System Hardware Issue

ESD Hardware System Issue

- 7.72 AECOM planned to bring Gas-In to the station for initial commissioning runs the day after the Static ESD test was completed. This ESD hardware was installed by AECOM's vendor BWDG in March 2018 (well in advance of the gas-in).³⁰⁶
- 7.73 However, on 13 April 2017 (the day after the ESD test was completed), AECOM was prevented from bringing Gas-In due to a hardware issue.³⁰⁷
- 7.74 As discussed in AECOM's monthly report, this event interrupted the Gas-In commissioning plan as shown in the figure below.

³⁰⁵ See Commissioning Schedule Activity ID: BCS.290 "Gas In to the Station"

³⁰⁶ [AEC00118536] See Commissioning Plan of the Day for 6 April 2018 Section B

³⁰⁷ [AEC00800774-AEC00800777, AEC00800776 (critical issues)] See Commissioning Plan of the Day for 13 April 2018 in critical issues

- ESDs

On April 4th, COSCO received the updated fire suppression program and upon testing it on April 5th, there were problems found with the program. The train recycle and anti-surge valves were found to have issues on April 6th. This affected the Gas-In Plan for Saturday, April 7th. On Monday, April 9th, the new program was installed and tested without any problems, making the system ready for pre-commissioning activities related to the ESD system. Both valve issues were resolved on Tuesday the 10th of April. The ESD system testing was completed on April 12, 2018.

The Gas-In Plan for April 13, 2018 was interrupted, however, by the ESD System receiving a fault signal from the PLC or communication card or some other hardware issue, thus the Gas-In operation was stopped twice by the ESD System, which operated correctly. This ESD shutdown was not due to a mechanical issue, but by a controls or telecommunication malfunction. The Gas-In operation was halted and resumed once the ESD System hardware problem was resolved. The sequence of events were as follows:

- PG&E Operations and commissioning staff were onsite April 14, 2018, to determine if the Gas-In Plan could be resumed.
- Pre-Commissioning activities located the ESD hardware problem, and at 3PM on the 14th it was determined the Gas-In Plan could proceed on the next day, April 15, 2018.
- The ESD system discharged the Main Gas system at 2:40AM on the 16th. The Pre-Commissioning team again ruled out mechanical failure, and decided there should be no further attempts at Gas-In until further notice.
- In a meeting onsite on April 17, 2018, PG&E's Kris Kaupanger introduced the idea of using a programming "mask" as a temporary fix to avoid any more unnecessary ESDs.
- Gas-In activities were completed on April 20, 2018.
- Gas blow down was required on April 25, 2018, because GOV-1 was leaking. The programming mask remained operable.

Figure 7-16 - AECOM April 2018 Monthly Report history of ESD hardware system issue³⁰⁸

7.75 These hardware issues persisted and continued to discharge gas during troubleshooting.³⁰⁹

7.76 On 17 April 2018, PG&E proposed that a "mask" could be put in place as a temporary mitigation measure to allow for commissioning to proceed.³¹⁰

- Turbine/Compressor Testing

During the first week in April 2018, clearance meetings were held to prepare for introduction of fuel gas to the turbine. On April 13, 2018, gas was introduced to the turbine, but soon thereafter (as noted above), multiple ESDs began to occur due to PLC issues, shutting down gas and initiating station blowdown. Throughout the remainder of April, commissioning and startup were delayed by ongoing equipment and PLC software/programming failures. To continue commissioning activities, a selective programming mask was implemented to override the ESD alarms and resultant station blowdown events. These events prevented Substantial Completion from being achieved on the target date of April 16, 2018.

Figure 7-17 - AECOM April 2018 Monthly Report "mask" mitigation measure³¹¹

³⁰⁸ [BURNEY000377901] See AECOM April 2018 monthly report page 25

³⁰⁹ [AEC00785331-AEC00785334] See Commissioning Plan of the Day for 14 April 2018

³¹⁰ [BURNEY000377900] See AECOM April 2018 monthly report page 23

³¹¹ [BURNEY000377901] See AECOM April 2018 monthly report page 24

7.77 Gas-In for initial commissioning runs was finally completed on 20 April 2018 with this mitigation “mask” in place.³¹²

7.78 However, it is noted that the ESD hardware system issue persisted as shown in the figure below.

IV. CRITICAL ISSUES	
1.	Sunday April 29 at 1:46 am Station went into ESD due to PLC communication fault at RSCP-6. Needs further investigation by PG&E and BWDG to determine what the underlying source for system communication faults is.
2.	GOV-1 still leaks after seal replacement when there is differential across the valve. AECOM to contact Cameron re: what has been discovered during commissioning and secondary seal replacement.
3.	Generator cannot be commissioned until new harness is received and new reg station that is stable is installed.

Figure 7-18 - Commissioning Daily Report of 30 April 2018³¹³

Conclusion

7.79 As discussed above, Gas-In for initial commissioning runs was finally completed on 20 April 2018. Given that the Gas-In milestone was planned to be achieved on 24 March 2018, the Gas-in for commissioning was 25 days in delay at this point in time (18 April 2018 – 24 March 2018 = 25 days). Considering the 20 days of delay to the previous commissioning window, 5 days was lost during this time period.

7.80 In my opinion, this delay was due to the ESD Hardware System Issue (25 days – 20 days = 5 days). As BWDG was responsible for the hardware, I have attributed the delay to them.

7.81 The table below summarizes the actual delay incurred in Window V. The delay during this time period is also illustrated in Figure 7-19 on the following page.

Phase 3 Window	Cause of Delay	Delay in Window (Days)
	Delays through Phase 3 Window IV	20
V	ESD hardware System Issue (AECOM Vendor)	5
	Total	25

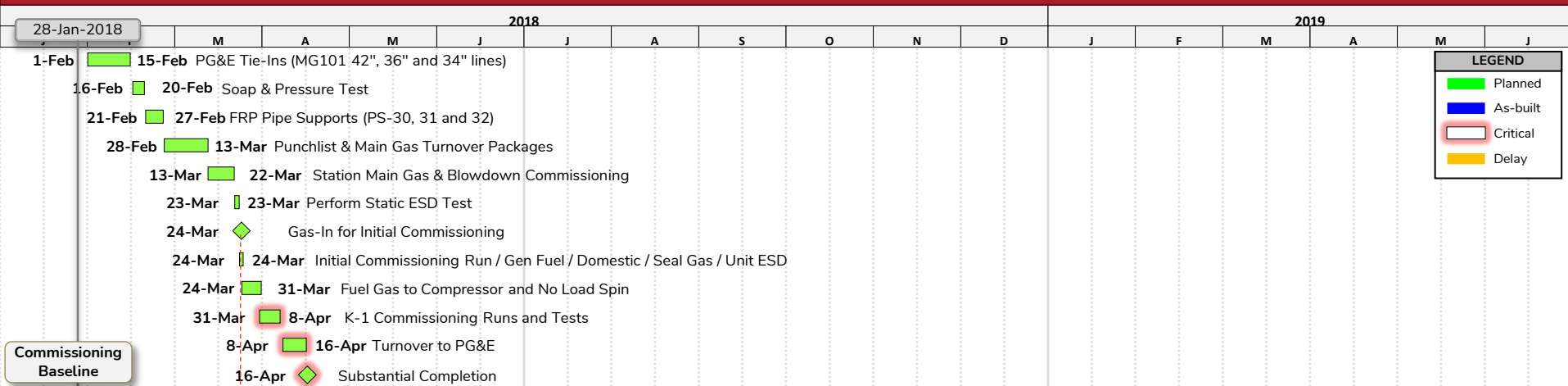
³¹² [BURNEY000377900] See AECOM April 2018 monthly report page 23

³¹³ [AEC00144791] See Commissioning Plan of the Day for 30 April 2018 Section IV

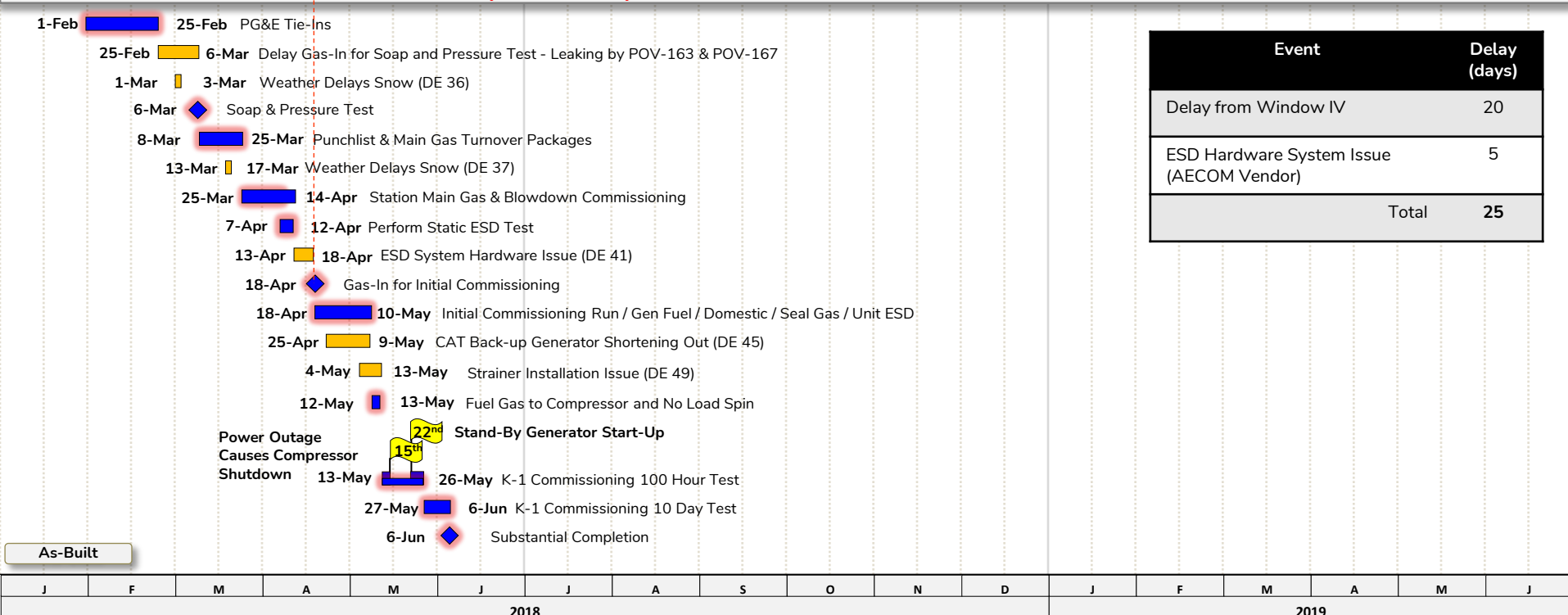
Burney Compressor Station K-2 Replacement Project

Phase III Window V – Gas-In for Initial Commissioning Runs

Figure 7-19



Total Delay = 25 Days



Phase 3 Window VI –Initial Commissioning Runs (18 Apr 2018 to 13 May 2018)

Introduction

- 7.82 Once the ESD “mask” was put in place, AECOM could bring gas into the station and commence the initial commissioning runs.
- 7.83 As it turns out, shortly after gas was brought into the station during the initial commissioning runs, AECOM encountered issues with the standby generator and the strainer, which prevented AECOM from commencing the 100-hour test until 13 May 2018.³¹⁴
- 7.84 In terms of critical delay in this time window:
- a) At the beginning of this time window (i.e., on 18 April 2018), the Project was 25 calendar days behind schedule (and a total of 175 calendar days in delay);
 - b) According to the Commissioning Schedule, AECOM planned to commence commissioning runs by 31 March 2018;³¹⁵
 - c) AECOM was not able to commence the 100-hour test until 13 May 2018 – **43 calendar days later than planned** (13 May 2018 - 31 March 2018 = 43 days); and
 - d) The Project was therefore delayed an **additional 18 calendar days in this time period** (43 days - 25 days = 18 days).
- 7.85 From my review of the contemporaneous documents and the progress achieved during this time, the principal cause(s) of critical delay in this window appear to have been as follows:
- a) CAT Stand-By Generator Wire Harness; and
 - b) Strainer Installation Issue.

CAT Stand-By Generator Wire Harness

- 7.86 On 25 April 2018, the CAT Stand-By Generator was started up for testing. During start-up, the wire harness was found to be smoking and damaged due to cross connected conductors which were installed by AECOM’s vendor, Peterson.³¹⁶

³¹⁴ [AEC00467730-AEC00467733, AEC00467731 (sect K)] See Commissioning Plan of the Day for 13 May 2018 section K

³¹⁵ See Commissioning Schedule Activity ID: COMM-73 “Gas in for Initial Commissioning Run / Gen Fuel / Domestic / Seal Gas / Unit ESD”

³¹⁶ [AEC00472251-AEC00472254, BURNEY000377904] See Commissioning Plan of the Day for 26 April and AECOM April 2018 monthly report page 27

7.87 Peterson, informed AECOM that a new harness could arrive in 2 weeks and proposed that a temporary wire harness be used for commissioning in the interim.³¹⁷

7.88 On 30 April 2018, PG&E decided that AECOM could proceed with the 100-hour test without the standby generator as shown below.³¹⁸

On April 25th, shortly after the vendor rep started the CAT standby generator for testing and commissioning activities, the wire harness was observed to be smoking. Commissioning activities were stopped immediately. Preliminary information about the availability of a new wire harness from Peterson was that it would be a two week delivery. Peterson proposed a temporary wire harness be made until the required wire harness was received. This plan was approved.

The Standby Generator was required to be operational to proceed with the 100-hour turbine testing in case there was a power outage. On April 30, 2018, PG&E asked for a firm delivery date for the replacement harness from Peterson so the project team could plan accordingly to be able to understand what to expect once the Solar Unit 100-hour run was completed. However, PG&E ultimately decided to proceed with the turbine testing without standby power.

Figure 7-20 - AECOM April 2018 Monthly Report and PG&E confirmation to proceed with testing³¹⁹

7.89 The installation of the temporary wire harness was completed by 9 May 2018 and the 100-hour test was performed with this temporary repair.³²⁰

7.90 However, it is noted that AECOM still needed to eventually install a permanent harness as can be seen in the commissioning daily report below.³²¹

C. Standby Generator Package

- 1. Complete installation replacement wiring to replace genset harness damaged by cross-connected conductors.**
2. Weld in new piping configuration for new regs.
- 3. Install reliable fuel gas regulation.**
4. Start-up Unit and load test.
5. Follow load test with transfer test.

Figure 7-31 - Commissioning Daily Report for 11 May 2018 after temporary wire harness installation³²²

³¹⁷ [BURNEY000377901] See AECOM April 2018 monthly report page 24

³¹⁸ [BURNEY000377901] See AECOM April 2018 monthly report page 24

³¹⁹ [BURNEY000377901] See AECOM April 2018 monthly report page 24

³²⁰ [AEC00437448-AEC00437451, AEC00437448 (sect C)] See Commissioning Plan of the Day for 9 May 2018 section C

³²¹ [AEC00231746] See Commissioning Plan of the Day for 11 May 2018 section C

³²² [AEC00428325-AEC00428325, AEC00428325-AEC00428326 (sect K)] See Commissioning Plan of the Day for 11 May 2018 Section C

Strainer Installation Issue

- 7.91 Concurrent with the Stand-By Generator harness issue, problems were encountered during the cleaning of the strainer. The strainer is designed to catch debris in the pipe spool to avoid potentially damaging equipment.
- 7.92 The strainer was removed by JH Kelly on 4 May 2018 to de-clog debris.³²³ It is my understanding that this debris could have come from any party but nonetheless this strainer would have always needed to be accessible for cleaning as part of routine maintenance.³²⁴
- 7.93 Once the strainer was removed for cleaning, it was damaged during re-installation on 6 May 2018 by JH Kelly.³²⁵ It is my understanding that this damage was caused because there was not enough clearance for the strainer as the pipe spool shifted at some point between initial construction and 6 May 2018.³²⁶
- 7.94 As JH Kelly caused the damage to the strainer, I have attributable the delay to them.
- 7.95 I note that AECOM contemporaneously noted in its Commissioning Plan of the Day that the strainer was difficult to repair and was on the critical path to start the compressor.³²⁷
- 7.96 The strainer was repaired and re-installed on 11 May 2018 as can be seen in the commissioning daily report below.³²⁸

VII. COMPLETED ACTIVITIES

1. Pulled actuator for FG-426 to fix stem seal leak.
2. Finished metal filler surface on strainer.
3. Re-installed spool and strainer assembly – needs final torquing for downstream flange before ready to pressurize.
4. BWDG completed creation of the VLAN to isolate the IO network.

Figure 7-22 - Commissioning Daily Report for 11 May 2018 after strainer re-installation³²⁹

³²³ [AEC00318584-AEC00318587, AEC00318584-AEC00318585 (sect K), AEC00318585 (sect VII)] See Commissioning Plan of the Day for 4 May 2018 section K and VII

³²⁴ [AEC00610570] AECOM delay event log

³²⁵ [AEC00359932-AEC00359935 (5-7-18), AEC00340345-AEC00340348 (5-6-18)] See Commissioning Plan of the Day for 7 May 2018 section K and Commissioning Plan of the Day for 6 May 2018 section V

³²⁶ [AEC00610570] AECOM delay event log

³²⁷ [BURNEY000377902] See AECOM April 2018 monthly report page 25

³²⁸ [AEC00428325-AEC00428325, AEC00428325-AEC00428326 (sect K)] See Commissioning Plan of the Day for 11 May 2018 section K

³²⁹ [AEC00428325-AEC00428325, AEC00428325-AEC00428326 (sect K)] See Commissioning Plan of the Day for 11 May 2018 Section VII

7.97 On 13 May 2018 the Compressor was started up and AECOM was able to commence the 100-hour test.³³⁰

Conclusion

7.98 As discussed above, AECOM was able to commence the 100-hour test on 13 May 2018. Given that the Compressor commissioning was planned to commence on 31 March 2018, this work was 43 days later than planned in the Commissioning Schedule (13 May 2018 - 31 March 2018 = 43 days). Considering the 25 days of delay to the previous commissioning window, 18 days was lost during this time period (43 days – 25 days = 18 days).

7.99 As discussed above, the CAT Stand-By Generator Harness was damaged upon start-up on 25 April 2018 and was the sole cause of delay for 9 days until 4 May 2018 (4 May 2018 – 25 April 2018 = 9 days). This 9-day delay is attributable to AECOM's vendor, Peterson.

7.100 As also discussed above, the Strainer was damaged on 4 May 2018 and was the sole cause of the 9-day delay to the start of initial commissioning runs until 13 May 2018 (13 May 2018 - 4 May 2018 = 9 days). This 9-day delay is attributable to JH Kelly.

7.101 The table below summarizes the actual delay incurred in Window VI. The delay during this time period is also illustrated in Figure 7-23 on the following page.

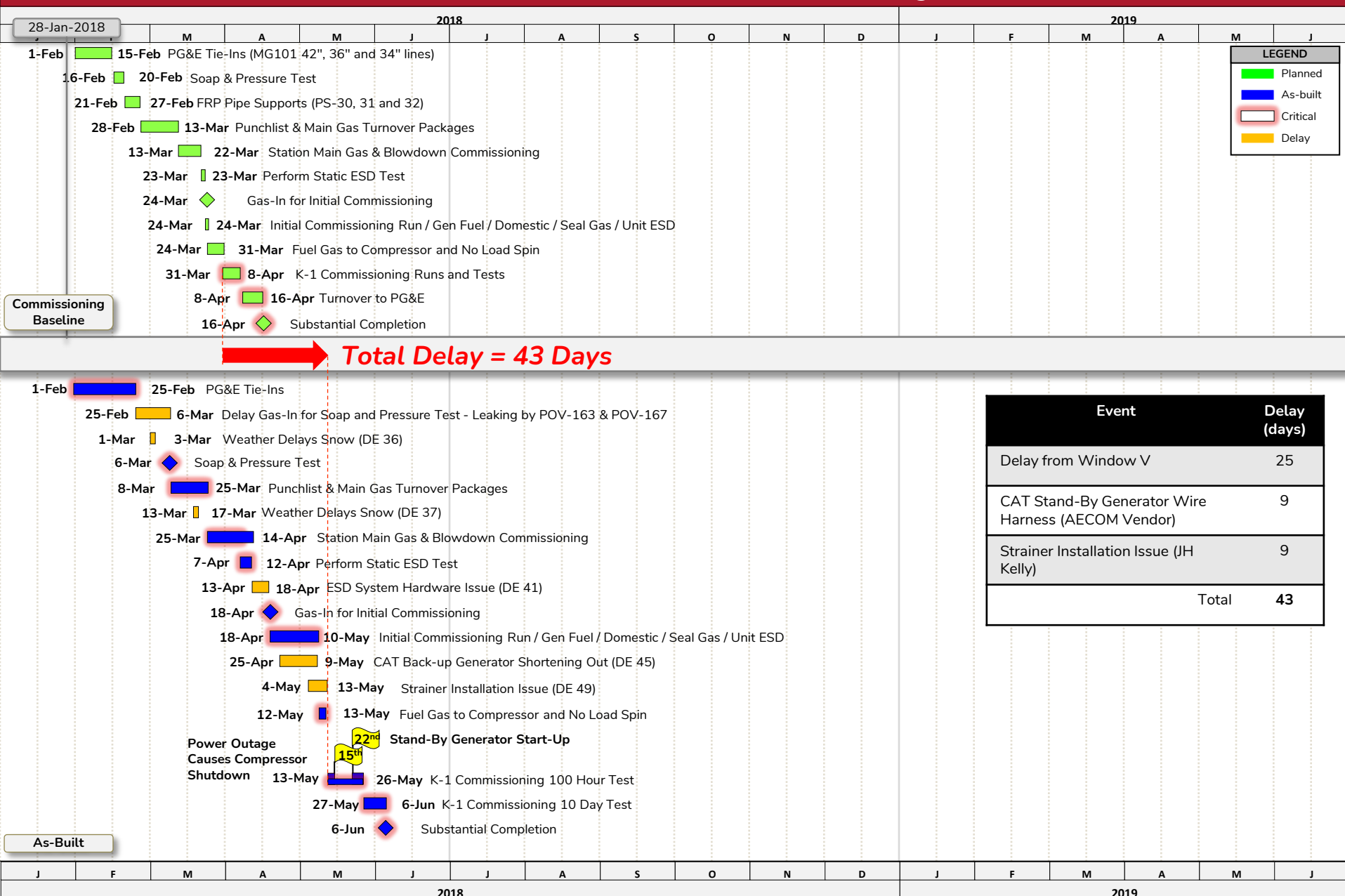
Phase 3 Window	Cause of Delay	Delay in Window (Days)
	Delays through Phase 3 Window V	25
VI	CAT Stand-By Generator Wire Harness (AECOM Vendor)	9
VI	Strainer Installation Issue (JH Kelly)	9
	Total	43

³³⁰ [AEC00467730-AEC00467733, AEC00467731 (sect K)] See Commissioning Plan of the Day for 13 May 2018 section K

Burney Compressor Station K-2 Replacement Project

Phase III Window VI – Initial Commissioning Runs

Figure 7-23



Phase 3 Window VII –Completion of 100-Hour Test (13 May 2018 to 26 May 2018)***Introduction***

7.102 AECOM commenced the 100-hour test during the last window with several mitigation measures in place such as the ESD Mask and without a commissioned Stand-By Generator. PG&E accepted this risk on 30 April 2018.

7.103 However, and as will be discussed, PG&E reversed this decision and AECOM was required to re-start the 100-hour test.

7.104 In terms of critical delay in this time window:

- a) At the beginning of this time window (i.e., on 13 May 2018), the Project was 44 calendar days behind schedule (and a total of 193 calendar days in delay);
- b) According to the Commissioning Schedule, AECOM planned to have the first 100 hours of Compressor commissioning completed by 4 April 2018;³³¹
- c) AECOM was not able to complete the 100-hour test until 26 May 2018 – **52 calendar days later than planned** (26 May 2018 - 4 April 2018 = 52 days); and
- d) The Project was therefore delayed an **additional 9 calendar days in this time period** (52 days - 43 days = 9 days).

7.105 From my review of the contemporaneous documents and the progress achieved during this time, the principal cause(s) of critical delay in this window appear to have been as follows:

- a) CAT Stand-By Generator; and
- b) Power Outage.

CAT Stand-By Generator Regulator

7.106 As discussed in the previous window, on 25 April 2018, the CAT Stand-By Generator was started up for testing and commissioning activities and the wire harness was found to be smoking. Also, during the start-up of the Stand-By Generator, the fuel gas regulator was found to not be operating as expected.³³²

³³¹ See Commissioning Schedule Activity ID: COMM-78 “K-1 Commissioning Runs and Tests

³³² [BURNEY000377902] See AECOM April 2018 monthly report page 25

7.107 On 26 April 2018, the commissioning team determined that a design change needed to be made for the Stand-By Generator and a new regulator was needed.³³³

7.108 AECOM's vendor, Peterson, estimated that the new regulator would arrive on 11 May 2018.

7.109 However, as it turns out, the regulator did not arrive on site until 15 May 2018 and was not installed until 18 May 2018.

Power Outage

7.110 As discussed in AECOM's April 2018 monthly report (shown below), PG&E accepted the risk of commencing the 100-hour test of the Compressor/Turbine without the Stand-By Generator as a mitigation measure. This decision was made on 30 April 2018 when both the regulator and wire harness issues were known.

The Standby Generator was required to be operational to proceed with the 100-hour turbine testing in case there was a power outage. On April 30, 2018, PG&E asked for a firm delivery date for the replacement harness from Peterson so the project team could plan accordingly to be able to understand what to expect once the Solar Unit 100-hour run was completed. However, PG&E ultimately decided to proceed with the turbine testing without standby power.

Figure 7-24 – AECOM monthly report for April 2018³³⁴

7.111 Unfortunately, after commencing the 100-hour test, there was a power outage event at the Project site on 15 May 2018.³³⁵

7.112 As a result of the outage, and as can be seen in the commissioning report below, PG&E advised AECOM that it would not accept the risk of continuing the Compressor/Turbine commissioning without backup power (in the event of another power outage). On 17 May 2018, PG&E instructed AECOM to re-start the 100-hour test once the Stand-By Generator was commissioned.³³⁶

³³³ [AEC00472251-AEC00472254, AEC00472251 (sect G)] See Commissioning Plan of the Day for 26 April 2018 section G

³³⁴ [BURNEY000377901] AECOM April 2018 monthly report page 24

³³⁵ [AEC00329747-AEC00329750, AEC00329747 (sect VII)] See Commissioning Plan of the Day for 16 May 2018 section VII

³³⁶ [AEC00281853-AEC00281856, AEC00281853 (sect VII)] See Commissioning Plan of the Day for 17 May 2018 section VII

VII. COMPLETED ACTIVITIES

1. Fitted & welded in new genset regulation piping – MT performed.
2. Determined new running schedule and constraints given conditions that occurred during May 15 power outage(s) – run Unit after genset is commissioned.
3. Alpine Power in to perform UPS battery capacity discharge test (re-test due to power failure).
4. Re-set air compressor auto-start after power failure configuration to 15 seconds.

Figure 7-25 – Commissioning Daily Report for 17 May 2018 after instruction to re-test³³⁷

7.113 As discussed above, the regulator for the Stand-By Generator was installed on 18 May 2018. Once the new regulator was installed, AECOM was able to start up the Stand-By generator on 22 May 2018.³³⁸

7.114 The 100-hour test of the Turbine/Compressor was re-started on 22 May 2018 and completed by 26 May 2018.³³⁹

Conclusion

7.115 As discussed above, the 100-hour test of the Turbine/Compressor was not completed until 26 May 2018. Given that the 100-Hour Test was planned to commence on 4 April 2018, this work was 52 days later than planned in the Commissioning Schedule (26 May 2018 - 4 April 2018 = 52 days). Considering the 43 days of delay to the previous commissioning window, 9 days was lost during this time period due to the delay events discussed above (52 days – 43 days = 9 days).

7.116 The 9-day delay is attributable to AEOCM, as the initial plan was to complete the 100-hour test with the Stand-By Generator (even though PGE& initially allowed AECOM to proceed without it).

7.117 The table below summarizes the actual delay incurred in Window VII. The delay during this time period is also illustrated in Figure 7-26 on the following page.

³³⁷ [AEC00281853-AEC00281856, AEC00281853 (sect VII)] See Commissioning Plan of the Day for 17 May 2018 section VII Item 3

³³⁸ [AEC00373571-AEC00373573, AEC00373571 (sect C)] See Commissioning Plan of the Day for 22 May 2018 section C

³³⁹ [AEC00323400-AEC00323402, AEC00323400 (sect VII)] See Commissioning Plan of the Day for 26 May 2018 section VII



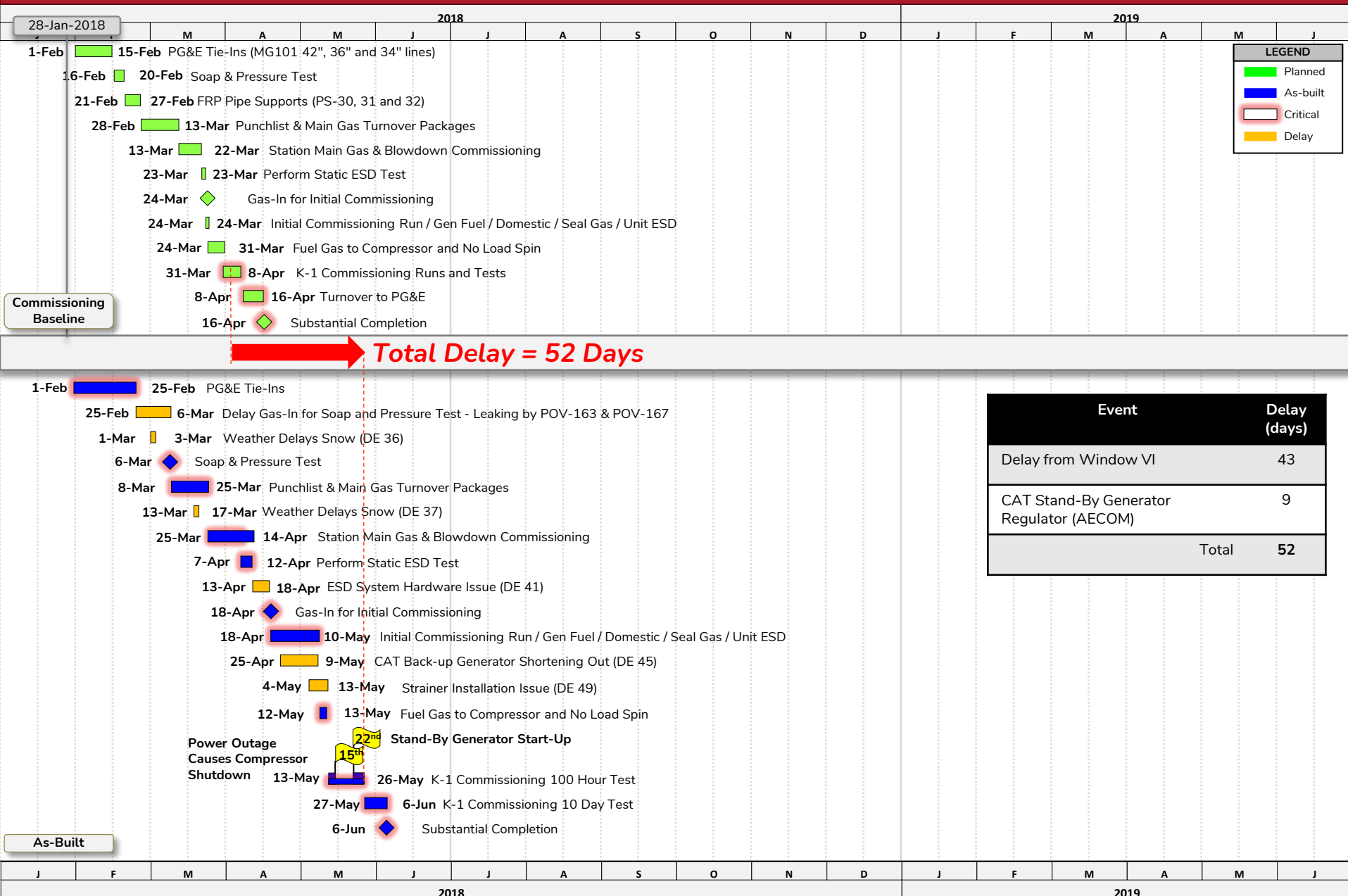
Phase 3 Window	Cause of Delay	Delay in Window (Days)
	Delays through Phase 3 Window VI	43
VII	CAT Stand-By Generator Regulator (AECOM)	9
	Total	52

Burney Compressor Station K-2 Replacement Project

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Phase III Window VII – 100-Hour Test

Figure 7-26



Phase 3 Window VIII – Substantial Completion (26 May 2018 to 6 Jun 2018)

Introduction

7.118 As previously discussed, AECOM planned to complete the 100-hour and 10-day tests concurrently in the Commissioning Schedule. AECOM then planned for an 8-day period to allow for turnover to PG&E prior to achieving Substantial Completion.

7.119 In terms of critical delay in this time window:

- a) At the beginning of this time window (i.e., on 26 May 2018), the Project was 52 calendar days behind schedule (and a total of 204 calendar days in delay);
- b) According to Commissioning Schedule, AECOM planned to achieve Substantial Completion by 16 April 2018;³⁴⁰
- c) AECOM completed the 10-day test and achieved Substantial Completion on 6 June 2018³⁴¹ – **51 calendar days later than planned** (6 June 2018 - 16 April 2018 = 51 days); and
- d) The Project actually **made up 1 day of delay in the time period** (52 days – 51 days = 1 day); and

7.120 As discussed above, AECOM commenced the 10-day test immediately after completing the 100-hour test and achieved substantial completion on 6 June 2018, thus they were able to make up 1 day of delay).³⁴²

Conclusion

7.121 The table below summarizes the actual delay incurred in Window VIII. The Contractor's performance during this time period is also illustrated in Figure 7-27 on the following page.

Phase 3 Window	Cause of Delay	Delay in Window (Days)
	Delays through Phase 3 Window VII	52
VIII	Mitigation	-1
	Total	51

³⁴⁰ See Commissioning Schedule Activity ID: BCS.270 "Substantial Completion (functional for its intended use)"

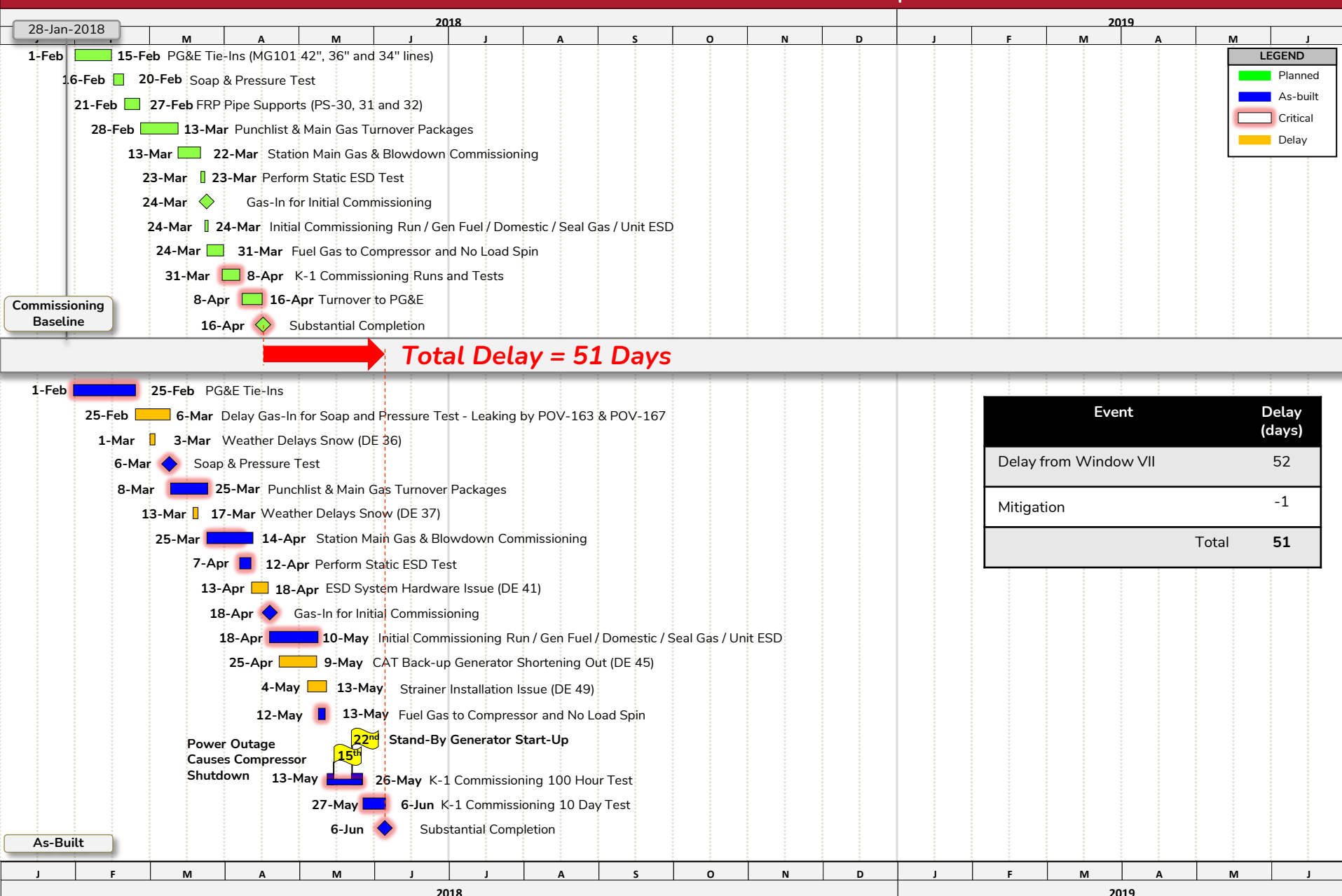
³⁴¹ [BURNEY000177366-BURNEY000177369] AECOM Letter from Don Divers to PG&E dated 13 June 2018

³⁴² [AEC00188937-AEC00188939] See AECOM Letter dated 26 June 2018

Burney Compressor Station K-2 Replacement Project

Phase III Window VIII – Substantial Completion

Figure 7-27





Conclusion of Analysis for Commissioning and Substantial Completion

7.122 As discussed above, at the end of the Construction period (i.e., 2 February 2018 and through Window VI), the Project was 150 calendar days behind schedule. An additional 51 days of delay were incurred during the commissioning for Substantial Completion which was achieved on 6 June 2018 – 201 days late. This delay can be seen in the table below.

Window	Delay Description	PG&E	JHK	AECOM	AECOM Vendors	Exc. Non-Comp	Cumulative Delay
Phase 2 I-IV	Construction	77	61	0	0	12	150
I	PG&E tie-ins	10	0	0	0	0	160
II	Leaks at Valves V-163 and V-167	0	0	0	1	0	161
II	Weather	0	0	0	0	3	164
III	Weather	0	0	0	0	1	165
IV	Updated Fire Suppression Program	0	0	0	5	0	170
V	ESD Hardware System Issue	0	0	0	5	0	175
VI	CAT Stand-By Generator	0	0	0	9	0	184
VI	Strainer Installation Issue	0	9	0	0	0	193
VII	CAT Stand-By Generator Regulator	0	0	9	0	0	202
VIII	Substantial Completion	0	0	-1	0	0	201
Total		87	70	8	32	16	201

8 Appendix A – Curriculum Vitae of Ted Scott



Ted M. Scott, P.E.

Managing Director

Current Position

Ted Scott is a Managing Director with Secretariat and has over 25 years of experience in the construction industry, specializing in dispute resolution, delay and disruption analyses, cost overruns, scheduling and project controls.

Professional Experience

Mr. Scott's experience spans across a variety of large scale infrastructure and commercial projects including: airports; highways, roads, and bridges; rail and light rail; ports; tunnels; energy and power plants; oil and gas; water and wastewater treatment facilities; education; sports and stadiums; hospitals; hotels and casinos; military; judicial; commercial and residential buildings; and IT systems.

Mr. Scott is an author and frequent speaker on a variety of construction related topics. He also serves on the American Society of Civil Engineers' committee for the development of a national consensus standard governing the best practice for conducting CPM schedule delay analysis in construction.

Prior to working in the consulting field, Mr. Scott worked both as a civil engineer and scheduler on several large highway and bridge projects gaining hands-on experience from the ground up.

Contact Details

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 tscott@secretariat-intl.com

Professional History

- Secretariat
- Navigant Consulting
- March USA
- KPMG
- McDonough Bolyard Pack
- HNTB

Education

- BS Civil Engineering
- Masters of Business Administration

Expert Experience

Mr. Scott has been appointed as an expert on numerous disputes in Asia, Australia, Europe, North America and the Middle East. He has testified in US Federal and State Courts as well as in arbitrations (under ICC, AAA, and JAMS rules) as an independent expert on matters of scheduling, project delay, loss of productivity and quantum.

Mr. Scott has also been recognized by Who's Who legal as an industry thought leader and top construction expert for delay and quantum. WWL says:

"Ted Scott's vast experience in the construction industry makes him a go-to figure for complex arbitration disputes in the sector."

Ted Scott is a favourite among sources who of whom notes they were "very much impressed with Ted's work - he should be on anyone's shortlist for delay analysis without question".

Ted M. Scott, P.E.

Ted Scott possesses "foremost expertise" in construction claims and is applauded by sources for his "calm under cross-examination".

Representative Engagements

Selected examples from Mr. Scott's body of work in project management, planning, programming and analysis of project delays include the following:

Airports

- On behalf of a contractor, analyzed delay and disruption arising during the construction of a \$5 billion airport in Oman.
- On behalf of two subcontractors, analyzed delay and disruption arising during the construction of a \$99 million airport control tower in Western United States.
- Appointed expert on behalf of a contractor, concerning delays and disruption arising during the construction of a \$148 million airport terminal connector in Southern California.
- On behalf of a contractor, analyzed delay and disruption arising during the construction of a \$4.6 billion airport in Qatar.
- Appointed expert on behalf of a subcontractor, concerning delays and disruption arising during the construction of a \$1.5 billion airport terminal in Southern California.
- On behalf of a contractor, analyzed delay and disruption arising during the construction of a \$650 million airport terminal in Russia.

Commercial & Residential

- Appointed expert on behalf of the contractor, concerning delays arising during the construction of a \$30 million, 17-story residential tower in Canada.
- Appointed expert on behalf of a developer, concerning delays and disruption arising during the construction of a \$1.5 billion hotel and condominium Project located in Southern California. The Project consisted of the renovation of a historic hotel, two forty-six story towers, and approximately 100,000 SF of commercial/retail space.
- Appointed expert on behalf of a developer, concerning delays arising during the construction of a \$76 million, 52-story luxury residential high-rise tower in Europe.
- On behalf of the contractor, analyzed delay arising during the construction of two, £30 million, 23-story apartment buildings in the United Kingdom.
- On behalf of the curtainwall subcontractor, analyzed delay arising during the construction of three, \$64 million high rise commercial office towers in Saudi Arabia.

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- Appointed expert on behalf of a developer, concerning delays and disruption arising during the construction of a \$38 million, 298 condominium complex in Southern California.
- Appointed expert on behalf of a contractor, concerning delays and disruption arising during the construction of a \$33 million, 5 building apartment complex in Southwestern United States.
- Appointed expert on behalf of a contractor, concerning delays and disruption arising during the construction of a \$110 million, 7 building apartment complex in Southern California.
- Appointed expert on behalf of a contractor, concerning delays and disruption arising during the construction of a \$230 million, 38 floor luxury residential tower in the U.A.E.
- Appointed expert on behalf of an architect, concerning delays arising during the construction of a \$65 million, 7-story luxury condominium project in Southern California.
- On behalf of a contractor, analyzed delay and disruption arising during the construction of a \$271 million city mall expansion in the U.A.E. The project included two 20-story residential towers covering an area of 218,000m².
- On behalf of a contractor, analyzed delay and disruption arising during the construction of a \$240 million office complex in Russia.
- Appointed expert on behalf of a design firm, concerning delays during the \$200 million refurbishment of a commercial office building in the UK.
- Appointed expert on behalf of a developer, concerning delays during the construction of a \$100 million residential housing complex in the UK.
- Appointed expert on behalf of the contractor, concerning delays during the construction of an \$850 million 52-story, commercial office building in Northeastern United States.
- Appointed expert on behalf of the owner, concerning delays during the construction of a \$48 million retail distribution center in Southeastern United States.
- On half of a contractor, analyzed delay arising during the construction of a \$300 million manufacturing facility in the UK.
- Appointed expert on behalf of the owner, concerning the delays arising during the construction of a \$110 million, 12-story company office campus in Northeastern United States.
- Delivered a detailed construction estimate for a fraud investigation during the renovation of a major urban office building. Reviewed preliminary Plans and Specifications, performed quantity takeoffs and crew and equipment analyses, and obtained materials supplier and subcontractor quotes in Northeastern United States.

Ted M. Scott, P.E.

- Implemented a project assessment of the \$66 million expansion, renovation and new construction of the existing Civic Center. Reviewed the responsibilities of the design and project management team. Reviewed design documents, construction estimates and procurement, letting and construction schedules. Recommended an appropriate project management structure and communication plan. Developed and presented a report identifying issues and concerns.
- On behalf of counsel for surety, served as project manager during construction of a \$10 million residential development for the release of bonds. Assisting counsel in identification and review of remaining work, soliciting bid prices and selection of contractor. Directed the contractor during the construction and managed team of on-site engineers.

Education

- Appointed expert on behalf of the contractor, analyzed delays and disruptions arising during the construction of a \$37 million. 100,000 ft² University laboratory building in Northern California.
- Appointed expert on behalf of the contractor, analyzed delays and disruptions arising during the construction of a \$55 million. 225,000 ft² University complex in Southern California.
- Appointed expert on behalf of the owner, analyzed delays and disruptions arising during the construction of a \$83 million public safety training complex in Southern California.
- Appointed expert on behalf of the owner, analyzed delays and disruptions arising during the construction of a \$71 million high school in Southern California.
- Appointed expert on behalf of a subcontractor, analyzed delays and disruptions arising during the construction of \$45 million high school in Southern California.
- Appointed expert on behalf of the construction manager, concerning delays and disruption arising during the construction of a \$56 million University learning resource facility in Southern California.
- Appointed expert on behalf of a contractor, concerning delays and disruption arising during the construction of a \$32 million, 3 story, 55,000 sq. ft. learning resource center in Southern California.
- Appointed expert on behalf of a contractor, concerning delays and disruption arising during the renovation of a \$13 million, 60,000 sq. ft. recital hall in Southern California.
- Appointed expert on behalf of a contractor, concerning delays and disruption arising during the construction of a \$110 million performing arts center in Southern California.
- Appointed expert on behalf of a subcontractor, concerning delays during the construction of a \$15 million University Research Building in Southeastern United States.
- On behalf of a contractor, analyzed delay arising during the construction of \$75 million University project in Northern California. The project consisted of 7 residential buildings and a student services building.

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- On behalf of an owner, analyzed delay and disruption arising during the construction and renovation of a \$50 million public school in Northeastern United States.
- On behalf of a contractor, analyzed delay arising during the \$21.5 million renovation of an 8 building, suburban high school campus in Northeastern United States.

Energy and Power

- Appointed expert on behalf of the owner, concerning delays and disruption arising during the construction of a \$12.8 billion 1,100 MW Hydroelectric generating station in Canada.
- Appointed expert on behalf of the EPC contractor, concerning delays and disruption arising during the construction of a \$215 million 200MWAC photovoltaic solar generation project in Georgia.
- Appointed expert on behalf of the owner, concerning delays and disruption arising during the construction of a \$416 million 280 megawatt (MW) alternating current (AC) solar project in Northern California.
- Appointed expert on behalf of the owner, concerning delays and disruption arising during the construction of a \$397 million 315MW photovoltaic (PV) solar farm in Texas.
- Appointed expert on behalf of the owner, concerning delays and disruption arising during the construction of a \$45 million biomass power plant in Hawaii.
- Appointed expert of behalf of the contractor, concerning delays and disruption arising during the construction of a \$400 million, 440 MW combined cycle power plant in Northwestern United States.
- Appointed expert of behalf of the contractor, concerning delays and disruption arising during the deconstruction of a \$35 million steam power plant in Southern California.
- On behalf of the contractor, analyzed delay and disruption arising during the construction of a \$45 million, 150-MW, alternating current photovoltaic power plant in Northern California.
- On behalf of an owner, analyzed delay arising during the construction of a \$250 million, 154 MW, coal/pet coke fired steam power generation unit power plant in South America.
- On behalf of an owner, analyzed delay arising during the construction of a \$500 million 1,200MW combined-cycle power plant in Southeastern Asia.
- On behalf of a contractor, analyzed delay and productivity during the construction of a \$70 million combined-cycle power plant in Northeastern United States.
- On behalf of an owner, analyzed delay arising during the construction of a \$91.2 million, 125 MW oil fired, and electric power generating plant in Asia.
- On behalf of an owner, analyzed delay arising during the construction of a \$96.2 million natural gas fired, combined cycle, electric power generating plant in Asia.

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Healthcare

- Appointed expert on behalf of the contractor, concerning delays and disruption arising during the \$188 million addition of a new hospital tower in Southern California.
- Appointed expert on behalf of a contractor, concerning delays and disruption arising during the construction of a \$225 million, five-story, 236,000 ft² cardiovascular research building in Northern California.
- Appointed expert on behalf of a contractor, concerning delays and disruption arising during the construction of a \$140 million, 156,000 ft² outpatient and clinic facility in Southern California.
- Appointed expert on behalf of a contractor, concerning delay and disruption arising during the construction of a \$55 million renovation of a children's hospital in Southern California.
- On behalf of a contractor, analyzed delay and disruption arising during the construction of a \$2.3 billion hospital in Qatar.
- On behalf of a contractor, analyzed delay arising during the construction of a \$100 million, 15-story, hospital in Jordan.
- Appointed expert on behalf of the owner, concerning delays arising during the construction of an \$83 million, six-story medical research laboratory in Northeastern United States.
- On behalf of an owner, analyzed delay arising during the construction of a \$23 million hospital expansion and renovation project involving multiple prime contractors and phased construction requirements in Southeastern United States.
- On behalf of an owner, analyzed delay arising during a \$13.5 million hospital renovation project including a Central Energy Plant and utility tunnels in Southern United States.

Highways/Roads/Bridges

- Appointed expert on behalf of the designer, concerning delays and disruption arising during a \$447 million highway project in Texas.
- Appointed expert on behalf of the owner, concerning delays arising during a \$8 million bridge in Southern California.
- Appointed expert on behalf of two subcontractors, concerning delays and disruption arising during the \$200 million upgrade of a bridge and bus terminal in Northeastern United States.
- Appointed expert on behalf of a joint venture, concerning delays and disruption arising during the construction of a \$1.3 billion upgrade of the main traffic artery of a major city in the Middle East. The project included over 395,000sqm of viaducts made of prefabricated segments, which include six cloverleaf intersections and other pertaining structures.

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- Appointed expert on behalf of the owner, concerning delays and disruption arising during a \$350 million upgrade of an iconic bridge in Northern California.
- Appointed expert on behalf of the developer, analyzed delay arising during the construction of a \$7 million steel bridge in Southern California.
- On behalf of a contractor, analyzed delay and disruption arising during the construction of a \$770 million highway in Canada. The project included 9 interchanges and 27 bridge structures.
- On behalf of an owner, analyzed delay and disruption arising during the construction of a \$250 million highway interchange in the U.A.E.
- On behalf of an owner, performed a constructability review and prepared a detailed CPM schedule for a \$150 million highway project located in Southeastern United States. The Project included 3 interchanges and 7 fly-over bridges.
- Appointed expert on behalf of the owner, concerning delays arising during the construction of a \$4 million, five-mile bike path in Northwestern United States.
- On behalf of the owner, managed the claim process for several ongoing highway construction projects including evaluating and performing detailed delay analyses, preparing settlement costs, and assisting in settlement negotiation meetings. All projects were located in Northeastern United States.
- On behalf of the owner, managed the construction CPM schedule for seven ongoing highway projects including reviewing the contractor's initial schedule submittals, reviewing monthly updates, evaluating delay impacts and analyzing areas for acceleration. All projects were located in Southeastern United States.
- On behalf of the owner, worked as a Project Engineering overseeing the construction of a \$55 million interstate interchange in Southeastern United States.
- On behalf of the owner, worked as a Project Engineering overseeing the construction of a \$35 million highway interchange in Southeastern United States.
- On behalf of the owner, worked as a Project Engineering overseeing the construction of a \$27 million highway interchange in Southeastern United States.
- As a design engineer, developed plans and specifications for a \$676 million interstate interchange in Southeastern United States.

Hospitality and Casinos

- Appointed expert on behalf of the contractor, concerning delays and disruption arising during the construction of a \$45 million, 250 room theme park hotel in Southern California.
- Appointed expert on behalf of the owner, concerning delays and disruption arising during the construction of a \$40 million, 11-story hotel in Southern California.

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- Appointed expert on behalf of the owner, concerning the delays arising during the \$63 million renovation of a 268-room hotel in Southern California.
- On behalf of a subcontractor, analyzed delays during the construction of a \$1.25 billion racetrack complex in U.A.E. that included 2 racetracks, a grandstand, a 258-room hotel, a marina, a museum and a cinema.
- Appointed expert on behalf of the owner, concerning the delays arising during the construction of a \$122 million high-rise hotel and condominium project in Northwestern United States.
- Appointed expert on behalf of the owner, concerning delays arising during the construction of a \$115 million, 1,400 room luxury hotel and spa in Southern California.
- Appointed expert on behalf of the owner, concerning delays arising during the rebuild a \$65 million resort and casino that was damaged due to Hurricane Katrina.
- Appointed expert on behalf of the owner, concerning delays arising during the construction of a \$34 million resort hotel and spa in Southeastern United States.
- Appointed expert on behalf of the contractor concerning delays arising during the construction of a \$60 million resort and casino in Southeastern United States.
- Appointed expert on behalf of the contractor concerning delays arising during the construction of a \$550 million complex including three international hotels, a shopping and entertainment centre, office and residential towers, and a medical centre in Egypt.

Judicial

- On behalf of the owner, analyzed delay arising during the construction of a \$111 million, ten-story courthouse and federal building in Southern California.
- On behalf of a contractor, analyzed delay and disruption arising during the construction of a \$100 million, 9-story prison facility, housing 1,000 inmates in Northeastern United States.
- On behalf of the owner, analyzed delay arising during the construction of a \$35 million, 6 building minimum-security prison facility housing 300 inmates in Southeastern United States.
- Reviewed the processes and controls in place for the construction of a \$35 million Adult Detention Center and Sheriff's Facility in Southeastern United States. Developed a report identifying issues and providing specific recommendations to strengthen future planning efforts.

IT Systems

- Appointed expert on behalf of the contractor, concerning delays arising during the implementation and integration of an airports IT system during the \$5 billion construction of a new international terminal in Oman.

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- On behalf of the owner, analyzed delay arising during the design, development, testing and support of a £1.1 billion electronic software system that collected and analyzed data for all passengers entering and leaving the UK.

Military

- Appointed expert on behalf of the contractor, concerning delays and disruption arising during the construction of 7 buildings on a military base in Southern California.
- On behalf of the contractor, analyzed delays arising during the manufacturing and production of a \$150 million military training system in Southwestern United States.
- Appointed expert on behalf of the Contractor concerning delays and disruption arising during the \$5 million refurbishment of a military airport runway in Southern California.

Oil, Gas, Process & Industrial:

- On behalf of the contractor, analyzed delay and disruption arising during the \$1 billion construction of eight sets of four modules which were to be lifted and integrated onto Floating, Production, Storage and Offloading platforms in South America.
- Appointed expert on behalf of the contractor, concerning delays and disruption arising during the construction of a \$65 million natural gas compression station and pipeline transportation system in Northern California.
- Appointed expert on behalf of the owner concerning delays and disruption arising during the \$115 million modernization of a paper and pulp mill in Western Canada.
- On behalf of a contractor, analyzed delay and disruption arising during the construction of a \$6 billion oil refinery in South America.
- Appointed expert on behalf of the owner, concerning delays and disruption arising during the construction of a \$2 billion oil refinery plant in Southern United States.
- On behalf of an owner, analyzed delay and disruption arising during the construction of a \$2 billion subsea oil production system and submarine pipeline off the coast of West Africa.
- On behalf of an owner, analyzed delay and disruption arising during the construction of a \$4 billion integrated offshore drilling and production oil platform in the Gulf of Mexico.
- On behalf of an owner, analyzed delay and disruption arising during the construction of a \$1.6 billion LNG plant and pipeline transportation system in the UK.
- On behalf of an owner, analyzed delay and disruption arising during the construction of a \$750 million methanol plant in the Middle East.
- Appointed expert on behalf of a contractor, concerning delays and disruption arising during the construction of an \$18 billion LNG plant and pipeline transportation system in Australia.

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- On behalf of the contractor, analyzed delay and disruption arising during the construction of 3 LNG mega-trains in Qatar and pipeline transportation system with a construction value of \$13 billion.
- On behalf of a joint venture, analyzed delay and construction management performance during the construction of a \$40 million grain crushing plant in the Ukraine.
- On behalf of a contractor, analyzed delays arising during the construction of a \$240 million polypropylene plant in Northeastern United States.

Ports, Ship Building

- Appointed expert on behalf of the contractor concerning delays and disruption arising during the construction of two \$100 million fire station boats in Western United States.
- Appointed expert on behalf of the program manager, concerning delays and disruption arising during the construction of an \$8.8 billion port in Qatar.
- Participated in a value engineering study on behalf of the US Army Corps of Engineers to examine the construction cost of \$250 million rehabilitation of an existing Lock and Dam on the Monongahela River. Presented findings to US Army and Riverboat industry.

Rail & Light Rail

- Appointed expert on behalf of the Owner, concerning delays and disruptions arising during the \$700 million electrification of a 52-mile rail corridor in Northern California.
- On behalf of the contractor, analyzed delay and disruption arising during the construction of a \$10 billion metro system in Saudi Arabia. The Project consisted of two rail lines with a combined length of 55 km and included 35 stations and 14 bridges.
- On behalf of the contractor, analyzed delay and disruption arising during the \$2.9 billion extension of a rail metro line in U.A.E.
- Appointed expert on behalf of the subcontractor, concerning delays and disruption arising during the construction of a \$2.25 billion transit center in Northern California. The transit center links several transportation systems including rail, light rail, high speed rail and buses.
- Appointed expert on behalf of the designer, concerning delays and disruption arising during the construction of a \$26 million Metro operations facility in Northern California.
- On behalf of an owner, analyzed delay and disruption arising during the construction of a \$2.5 billion rail transport project in Turkey. The project included a 76 km high capacity rail line and the world's deepest undersea immersed tube tunnel.
- On behalf of the contractor, analyzed delay and disruption arising during the design and construction of a £1.2 billion contract in relation to the replacement of the telecommunications and radio system for one of the largest underground rail networks in Europe.

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Sports/ Stadiums

- Appointed expert on behalf of the contractor, analyzed delay and disruption arising during the construction of a \$850 million, 60,000 capacity stadium in Qatar.
- Appointed expert on behalf of the contractor, concerning delays and disruption arising during the construction of a \$55 million, 1,000-capacity sports complex in Southern California United States.
- On behalf of the contractor, performed schedule review to monitor progress during the construction of a \$50 million, 10,000 seat outdoor concert venue in Southern California United States.
- Appointed expert on behalf of a subcontractor, concerning delays and disruption arising during the construction of a \$220 million, 41,000-capacity on-campus multi-purpose stadium in Western United States.
- On behalf of the Contractor, managed the construction CPM schedule for a 38,000-capacity professional baseball stadium with a construction value of \$203 million. Reviewed the contractor's initial schedule submittal, performed monthly updates, evaluated impacts and delays and analyzed areas for acceleration. Active participation with the contractor in partnering and CPM schedule review meetings. The Project was located in Northeastern United States.

Tunnels

- On behalf of a city council, analyzed delay and disruption arising during the construction of a \$716 million twin bore tunnel highway project in the UK.
- On behalf of the owner, managed the CPM schedule for a \$22.3 million three-phased tunneling operation, to improve a portion of a city's trunk sewer.

Water & Wastewater

- Appointed expert on behalf of the contractor, concerning delays and disruption arising during the construction of a \$228 million sewage plant in the Middle East.
- Appointed expert on behalf of the contractor, concerning delays and disruption arising during the construction of a \$192 million water quality control plant in Southern California.
- Appointed expert on behalf of the contractor, concerning delays and disruption arising during the construction of a \$180 million water reclamation facility in Southern California.
- Appointed expert on behalf of the owner, concerning delays and disruption arising during the construction of a \$16 million lift station in Southern California.
- Appointed expert on behalf of a developer, concerning delays arising during the construction of a \$1.5 million potable transmission waterline that supports a 20,000-acre planned development community.

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- On behalf of an owner, analyzed delays arising during the construction of a \$55 million indoor marine science research center including a flowing seawater facility providing raw, filtered and treated seawater for research applications in Southeastern United States.

Ted M. Scott, P.E.

Testimony

RIZZANI DE ECCHER S.p.A. (Italy)
OBRASCON HUARTE LAIN S.A. (Spain)
TREVI S.p.A. (Italy)
vs THE STATE OF KUWAIT
Trial Testimony, 2021

Steiner vs Tenpenny
Steiner Residence
Deposition Testimony, 2021

Stantec vs Beazley
Loop 375
Trial Testimony, 2020

Calex vs Webcor
Century City Plaza
Mediation Testimony, 2020

South Orange County Community College District vs PCL Construction Services
Saddleback Stadium
Mediation Testimony, 2020

Merlin Entertainment Group vs PCL Construction Services
Legoland Castle Hotel
Mediation Testimony, 2020

Forestar Chatsworth vs Beador Construction Co.
Poema Bridge
Deposition and Trial Testimony, 2020

Ventana Construction Corp. vs Duke Limited Partnership
The Duke
Trial Testimony, 2020

NCR vs Thales Phase 3
Muscat International Airport
Trial Testimony, 2020

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Foss Maritime vs City of Long Beach
Fireboats for Stations No 15 and 20
Mediation Testimony, 2020

Fisk Electric vs Archer Western
McCarron Airport Air Traffic Control Tower
Deposition and Trial Testimony, 2019

Desert Mechanical vs Archer Western
McCarron Airport Air Traffic Control Tower
Deposition and Trial Testimony, 2019

American Multifamily vs HP Real Estate Development
Claremont College Keck Graduate Student Housing
Deposition 2019

GW Bridge Bus Station Development Venture vs Five Star Electric
GW Bridge Bus Station Redevelopment
Trial Testimony, 2019

GW Bridge Bus Station Development Venture vs WDF
GW Bridge Bus Station Redevelopment
Trial Testimony, 2019

Action Direct vs NNP III-Estrella Mountain Ranch
Estrella Mountain Ranch
Deposition Testimony, 2018

NCR vs Thales Phase 2
Muscat International Airport
Trial Testimony, 2018

Zlota vs INSO
Zlota 44
Trial Testimony, 2017

NCR vs Thales
Muscat International Airport
Trial Testimony, 2017

Allan Hancock Joint Community District vs Sinanian Development Inc
Allan Hancock Community College
Mediation Testimony, 2017

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Restec Contractors vs Cleveland Wrecking Company
Bakersfield Power Plant
Deposition Testimony, 2017

Metro vs LCN
Judy K. Souza Operations Facility
Mediation Testimony, 2017

BCC Construction vs Green Energy
Kauai Biomass Plant
Trial and Deposition Testimony, 2017

Fisk Electric vs Suffolk Construction
LAUSD Central Region 9th Street, K-8 Span
Deposition, Trial Testimony, 2017

Advent Companies vs SJC II/Fourth and Haven
Vistara
Trial and Deposition Testimony, 2017

Straub-Driver vs Global Metals Corp
Truck Company Operations Complex at the Marine Corps Base in Camp Pendleton
Trial and Deposition Testimony 2016

PCL vs Eastern Municipal Water District
San Jacinto Valley Regional Water Reclamation Facility
Mediation Testimony, 2015

Straub Construction vs AAA Paving
March Airforce Base
Trial and Deposition Testimony 2015

Chevron USA Inc. vs. KBR
The PBOP Project
Mediation Testimony, 2014

California Comfort vs. Summit dck Construction Company
Los Angeles City College – Clausen Hall
Mediation Testimony 2014

URS vs. Coast Community College District
Golden West College Learning Resource Center
Trial, Deposition and Mediation Testimony 2014

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Sepulveda Construction vs City of Huntington Beach
Pump Station
Trial and Deposition Testimony 2014

American/BCEGZ vs. Shores LLC
The Shores
Trial, Deposition and Mediation Testimony 2013

Chevron USA Inc. vs. GMF
The Bigfoot Project
Mediation Testimony, 2013

USA Kenmore v John Sergio Fisher & Associates, Inc.
Kenmore Towers
Mediation Testimony 2012

EMethanex vs. Techint
Damietta Methanol Project
Mediation Testimony, 2010

Superior Wall Systems vs. C.W. Driver
California State University Northridge Performing Arts Center
Mediation Testimony, 2010

Bell BCI Company vs. U.S.
Louis Stokes Laboratory
Fed. Court of Claims, 2010
Deposition and Mediation Testimony 2009

Dublin City Council vs. NMI Construction
Dublin Port Tunnel
Dispute Advisory Board, 2007
Mediation Testimony

Vulcan Inc. vs. FM Global
2200 Westlake Condos
Mediation Testimony, 2007

Penn National Gaming. vs. Zurich
Casino Magic
Mediation Testimony, 2007

Bell BCI Company vs. U.S.
Louis Stokes Laboratory
Fed. Court of Claims, 2005
Trial and Deposition Testimony

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Zurich vs. Aztar
Tropicana Casino
Supreme Court of Arizona, 2005
Deposition Testimony

Destination Hospitality Development vs. FM Global
Estancia Hotel
Mediation Testimony, 2004

Alexandria City Public Schools vs. Fox-Seko
George Washington Middle School
Mediation Testimony, 2003

EXHIBIT 2

Ted Scott
12/15/2021

1 Q. Okay. And in this paragraph 1.22, as well as
2 several other paragraphs, you write:

3 Should it be found that
4 JH Kelly was responsible for
5 catching the conflict earlier than
6 they did...

7 And you use that "should it be found" language
8 in at least one other paragraph; in this report and two
9 paragraphs in your rebuttal report that I found.

10 You are not an electrical engineering expert,
11 correct?

12 A. Correct.

13 Q. Are you an expert on conflict detection in
14 drawings?

15 A. An expert in it? No.

16 Q. With the language that you're using, "should
17 it be found," are you providing an opinion in your
18 reports on whether or not JH Kelly is, in fact,
19 responsible for catching this conflict, or are you
20 deferring to Mr. Lewis on that issue?

21 A. I really am deferring to the trier of fact.
22 To me, this is -- it probably takes somewhat of a legal
23 opinion, you know, contractually as to whether or not
24 JH Kelly is responsible for it or not. I mean, I --
25 I -- so, you know, I refer to the documents in here that

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1 your hard copy version, but I'm going to want the
2 comfort that the electronic version is the version that
3 I'm referring to.

4 A. Okay, I have them both open electronically.

5 Q. At page 6 of your rebuttal report --

6 A. Okay.

7 Q. -- you have some snips of the subcontracts.

8 And one of them is of Section 3.4.

9 Do you see that?

10 A. I do.

11 Q. Okay. Section 3.4, the first sentence says:

12 Design builder shall notify
13 subcontractor of any errors,
14 inconsistencies or omissions,
15 design builder discovers in the
16 work.

17 Are you offering an opinion on whether or not
18 AECOM should have caught the conflict at issue in this
19 window of your delay analysis.

20 A. Am I offering an opinion as to if AECOM should
21 have?

22 Q. Correct. That's my question.

23 A. I guess it's my understanding that they, you
24 know, if -- in order for AECOM to catch a conflict, they
25 would have had to have the information from JH Kelly to

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1 do so. So -- but, you know, ultimately, I guess I'm
2 not -- I think what you're asking me is certainly a
3 standard of care issue, which, you know, I'm not going
4 to opine on.

5 Q. Okay. And I think that's what I'm getting to.
6 Maybe another way to go at this is your report -- and
7 we'll get to it -- includes a 50/50 split between PG&E
8 and JH Kelly on this issue, correct?

9 A. Correct.

10 Q. And so you haven't allocated any percentage of
11 fault on this issue to AECOM in your report, correct?

12 A. Correct.

13 Q. Okay. And one issue before the trier of fact
14 is going to be, did AECOM's share responsibility for
15 this issue. Are you with me?

16 A. I guess potentially. I haven't seen that
17 made, but it haven't been -- I haven't seen it alleged,
18 but I guess if -- so I don't know the answer to that.

19 Q. Okay. So you don't recall any reference in
20 Mr. Melvin of C2G's rebuttal report regarding AECOM
21 having responsibility for identifying this conflict?

22 A. You know, I recall -- I do recall that he
23 questioned why I didn't attribute some delay to AECOM.
24 But I don't -- I don't -- I don't recall him making a
25 specific allegation, but I could be wrong.

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1 the trier of fact, you know, to decide.

2 Q. Okay. I guess --

3 A. In terms of whether or not they're
4 contractually responsible. We talked about all those
5 things about what's in the bid and, you know, things
6 like that.

7 Q. I guess is it fair for me to say that you're
8 not a legal expert and you're not providing an opinion
9 on JH Kelly's contractual responsibility or lack thereof
10 for catching this conflict? Is that --

11 A. Definitely, I'm not providing a legal opinion.

12 Q. Okay. I'm trying to -- what I'm getting at is
13 trying to understand if there's any gray area where you
14 are providing what you regard to be an expert opinion
15 regarding who was responsible for catching this conflict
16 and when, as opposed to simply deferring to, you know,
17 Mr. Lewis as an electrical engineer and the legal
18 interpretation of the contract documents.

19 A. Yeah. So I'm saying -- I guess I'm saying
20 those two things, that, you know, discussion with
21 Mr. Lewis, as well as setting out, you know, as from a
22 practitioner's point of view, what's in the subcontract
23 and, you know, the money that's set out in the bid, you
24 know, the email that -- some recognition on JH Kelly's
25 part.

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1 But like I said, ultimately, a decision -- you
2 know, trier of fact is going to have to make a decision
3 on who is contractually responsible, you know, the
4 contractually responsible part, you know, I've left to
5 the trier of fact to decide. That's beyond my sort of
6 expertise.

7 Q. Okay. And I think maybe -- so what I'm trying
8 to understand is -- I don't disagree the trier of fact
9 is going to have to make a decision. The question is
10 what information should the trier of fact consider on
11 this issue. And one possibility is that the trier of
12 fact considers your opinion represented to be an expert
13 opinion in this area, whereas, you know, another
14 possibility is you're deferring to, you know, Mr. Lewis
15 on certain issues.

16 I understand that you've -- you defer to
17 Mr. Lewis on the standard of care for a contractor,
18 engineer, owner in this area. I'm with you so far right
19 there, correct?

20 A. Correct.

21 Q. Okay. Maybe I'll just go about this in a
22 slightly different way.

23 Regarding the question of whether or not AECOM
24 made any mistakes or made any oversights -- or had any
25 oversights in its electrical engineering work, is that a

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1 question that you would defer entirely to Mr. Lewis?

2 A. Yes, I believe I would.

3 Q. Okay. And as far as whether or not AECOM made
4 any mistakes in its engineering work on this project, is
5 that a question you would defer to Mr. Lewis or others?

6 A. Yeah. When you say mistakes I think -- you
7 know, that, to me, is standard of care. And that would
8 be Mr. Lewis.

9 Q. Okay. So as an example, if -- whether or not
10 AECOM omitted a detail or did not omit a detail,
11 that's -- that's a question that you would defer to
12 Mr. Lewis; is that fair?

13 A. As to who was -- yeah. Responsible and
14 that -- yes, I would.

15 Q. Okay. And as to whether or not the buck stops
16 with AECOM as the engineer of record or doesn't, would
17 that be something that you also defer to Mr. Lewis?

18 A. I'm sorry, repeat that, please.

19 Q. Yeah. No problem.

20 So as to the question of whether or not as the
21 engineer of record, you know, the buck stops, the phrase
22 "the buck stops," as to whether or not the buck would
23 stop with AECOM or would not stop with AECOM, that's a
24 question that you would defer to Mr. Lewis; is that
25 fair?

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1 A. Yeah. I think I would -- I think I have said
2 that. That's, you know, sort of two -- right, there's
3 two opinions there I guess. One being contractual
4 legal, the other being standard of care sort of issue.

5 Q. Okay. And so on the contractual legal front,
6 on that issue, is it fair for me to understand that
7 you're not offering a legal opinion on the proper
8 interpretation of the contract documents on that issue,
9 you're not providing a legal opinion?

10 A. Yeah. I'm definitely not providing a legal
11 opinion. I have said it again as a practitioner, that's
12 how I see it. But I think ultimately, you know, who was
13 contractually responsible -- I know I keep repeating
14 myself but, you know, that's a -- that's a legal
15 opinion.

16 Q. Okay. So you're saying that as a practitioner
17 doing the type of work that you do, you have pointed out
18 some things that jump out to you but you're not
19 purporting to provide a legal opinion; is that fair?

20 A. Correct. That's fair.

21 Q. Okay. And then the other side of this issue
22 is the electrical engineering standard of care and
23 that's not something for which you're providing any sort
24 of independent expert opinion, other than relying on the
25 opinion of Mr. Lewis. Is that fair?

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1 A. It is.

2 Q. Okay. So with that understanding, is it fair
3 for me to -- is it fair to conclude that, as you state
4 repeatedly in your two reports, you're not offering an
5 opinion on who is at fault or the quantification of
6 fault for the conflict issue. But to the extent
7 JH Kelly is found at fault, as you state in your report,
8 you're putting forward your recommended 50/50 breakdown
9 there for those delay periods?

10 A. Yeah, I think that's why it's worded the way
11 it is, as you've pointed out. You know. I've assumed
12 that they are responsible for purposes of this report.
13 And so that's, you know, I think, you know -- so I can't
14 remember what your question is, but that's, you know,
15 the -- you know, that's why the report's worded that
16 way.

17 Q. I think you --

18 A. It makes that assumption.

19 Q. Fair enough. I think you answered my question
20 there.

21 I think -- so at trial, on this issue, on the
22 conflict issue, are you planning to offer an opinion
23 that JH Kelly is at fault for failing to discover the
24 conflict, or is your opinion gonna be entirely dependent
25 on whether or not a determination is made allocating

EXHIBIT 3

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1 pushed back in March 2017 when PG&E came out with
2 new design criteria and design changes; right?

3 A. Yes.

4 Q. Two, they omitted a detail showing how the
5 conflict between the gas piping and the existing
6 electrical duct bank was to be resolved; right?

7 A. Yes.

8 Q. What else, in your opinion, did AECOM not
9 do well or did poorly on this job?

10 A. I don't believe there's other -- I don't
11 believe there are other significant issues.

12 Q. Were you asked to break out an allocation
13 of fault among PG&E, AECOM, and JH Kelly as part of
14 your scope of your engagement?

15 A. In the -- yes, in the process of looking
16 through the IFC, the interim IFCs to determine the
17 cause of each of those IFCs.

18 Q. Okay. And were you asked to allocate fault
19 as between, in your opinion, at least, AECOM and
20 JH Kelly concerning responsibility for the conflict
21 between the gas piping and the existing electrical
22 duct bank?

23 MR. CONRAD: Vague and ambiguous.

24 THE WITNESS: I'm not sure that I could say
25 specifically to assign fault in those cases. I was

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1 asked to evaluate the genesis and the solutions
2 and -- of that conflict.

3 BY MR. NELSON:

4 Q. If AECOM had provided a detail -- the
5 detail you mentioned that was omitted, if AECOM had
6 prepared a detail demonstrating how the gas piping
7 and electrical duct bank conflict would be resolved,
8 would it have mattered what JH Kelly did or did not
9 do during a constructability or design input stage?

10 MR. CONRAD: Vague and ambiguous as to
11 time. Incomplete hypothetical.

12 MR. NELSON: Okay. Let me rephrase that.

13 BY MR. NELSON:

14 Q. At 30 percent drawings, the intent was to
15 use an existing duct bank; right?

16 A. Yes.

17 Q. And that existing duct bank, somehow,
18 whether over or under, was resolved because
19 otherwise it was going to go and conflict with the
20 gas piping; is that right?

21 A. At that stage of the project, it would have
22 been presumed that there was a solution to either go
23 over or under.

24 Q. I mean, there was an existing gas pipe, and
25 there was an existing electrical duct bank, and

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1 review a design that shows how that should be
2 handled.

3 Q. Correct me if I'm wrong, you are not
4 apportioning out fault in terms of percentages to
5 PG&E, AECOM, and JH Kelly, are you?

6 A. No.

7 Q. And you won't be doing that at trial;
8 right?

9 A. Quantifying is not my scope.

10 Q. Go back to your report. You say at
11 paragraph 103 that the "NEC does not require
12 derating based on depth of cover for the 120 and
13 480-volt resident in this project."

14 Do you see where I'm reading?

15 A. Yes.

16 Q. As you sit here today, do you agree with
17 your opinions as set forth in paragraph 103?

18 A. Yes.

19 Q. Well, a pneumograph doesn't require
20 derating in this instance.

21 THE STENOGRAPHER: Who doesn't?

22 BY MR. NELSON:

23 Q. Doesn't the number of current-carrying
24 conductors potentially trigger derating?

25 A. Yes.

EXHIBIT 4

1 attention that there was an underground gas pipe, I
2 believe it was a 36-inch diameter pipe, that the --
3 that the duct bank was having to cross over, and we
4 had to make modifications to the duct bank routing
5 because of that -- because of that pipe.

6 BY MR. GRUBER:

7 Q Who brought that to your attention, if you
8 recall?

9 A I just can't recall that detail.

10 Q That's fine.

11 Do you recall if it was someone at JH
12 Kelly?

13 A I can't recall. I know we collectively
14 worked as a team to resolve the issue and some
15 options were put being that the underground duct was
16 going to clash with the existing pipe. So we had a
17 few options that were presented, one being that we go
18 deeper and that we trench deeper under that pipe to
19 avoid (inaudible).

20 Second option was that we actually come
21 above ground and -- and basically bridge that area
22 with a structure to bring the conduit over and above.

23 The third and least desirable, but which
24 ended up being the option that was implemented, was
25 to completely avoid that area and reroute the duct

1 banks. That duct bank is basically supplying the gas
2 cooler area, and if we assume north is up on the
3 page, we rerouted the duct bank to the east of the
4 plant in order to supply the gas cooler area and
5 avoid the pipe.

6 Q I'm going -- sorry, I didn't mean to
7 interrupt you. I was going to bring up a drawing to
8 hopefully facilitate the conversation, but if you're
9 not done, please finish.

10 A I'm done.

11 Q Okay. Can you bring up the drawing that's
12 identified as "stamped - 4804181S1." And I apologize
13 in advance. My ineptitude with the PDF format, and
14 this is turned 90 degrees and I cannot figure out how
15 to save it turned upright. So hopefully we can
16 struggle through it together. I apologize.

17 A I have it rotated the correct way.

18 Q Thank you.

19 A Yep.

20 Q And just for clarity, the table in the
21 document identifies this as a drawing that's dated
22 5/5/17; is that correct? Am I reading that
23 correctly?

24 A I concur.

25 Q And that is your stamp, your engineering

EXHIBIT 5

From: [Goward, Dean](#)
To: [Steve Lennon](#); [Petto, Steven](#)
Cc: [Ekren, Winston](#)
Subject: RE: AECOM eng'g package for Burney construction contract2
Date: Wednesday, October 07, 2015 3:30:45 PM
Attachments: [image001.jpg](#)

Steve –

Some comments on the breakdown:

1. The length of the duct bank should only be about 900ft
2. Reduce quantity of #8 wire from 38,800ft to 25,000ft
3. 2" conduit can be reduced from 48,130ft down to 34,330ft
4. I did not see #8 wire power terminations on your list.

Dean

From: Steve Lennon [mailto:SLennon@jhkelly.com]
Sent: Tuesday, October 06, 2015 4:22 PM
To: Petto, Steven
Cc: Ekren, Winston; Goward, Dean
Subject: RE: AECOM eng'g package for Burney construction contract

Steve P,

In the hope of saving Gabe some time for getting his estimate done tomorrow, attached is his detailed break out so far.
 All quantities in this breakout were provided by AECOM.

Hope this helps.

What cost code should the site lighting be put into? 19.1 as well?

Thanks,
 Steve Lennon
 JH Kelly, LLC
 360-905-1372
slennon@jhkelly.com



From: Petto, Steven [mailto:Steven.Petto@aecom.com]
Sent: Tuesday, October 06, 2015 1:45 PM
To: Steve Lennon <SLennon@jhkelly.com>
Cc: Ekren, Winston <Winston.Ekren@aecom.com>; Goward, Dean <Dean.Goward@aecom.com>
Subject: RE: AECOM eng'g package for Burney construction contract

Steve L,
 Please provide a breakout of line item 19 similar to what you did for 15.1:

19.1	Install and connect power supplies			\$4,777,363
------	------------------------------------	--	--	-------------

Thank you,
 Steve

Steven R. Petto, PE, PMP
 Alternative Delivery Manager
 Senior Project Manager
 Power & Industrial
 D 510.874.1731 (effective August 31, 2015)

EXHIBIT 6

EXHIBIT E



AECOM

Burney Compressor Station

K-2 Replacement Project

Reply Report on Delay

By:
Ted Scott
16 November 2021



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4	Analysis of Delays to Commissioning (Phase 3)	29
5	Analysis of Post Substantial Completion	31
6	Observations and Concerns with Dr. Ibbs' Equitable Adjustment Analysis	33
	<i>AECOM failed to provide detailed and stable schedules. That impacted JH Kelly's ability to efficiently plan and execute its work, impacting its productivity and costs.</i>	<i>33</i>
	<i>AECOM only provided JH Kelly pdf's of the schedule and, as a result, JH Kelly could not "investigate this schedule and understand any problems fully"</i>	<i>34</i>
	<i>AECOM's schedules were "unstable" which led to JH Kelly not being able to effectively plan its work.</i>	<i>35</i>

1 Executive Summary

- 1.1 Secretariat International has been retained by counsel for AECOM to independently analyze the delays that were incurred during Phase 1 and 2 of the K2 Replacement at the Burney Compressor Station.
- 1.2 On 18 October 2021, in relation to the above, and as part of these proceedings, I submitted to the Court a “Report on Delay” (herein referred to as my First Report). This report contained my findings, opinions and conclusions with respect to the delay that was incurred to the contractual milestones for the Project.
- 1.3 On the same day that I issued my First Report, Mr. Torres issued a similar report containing his schedule analysis for the Burney Project. This analysis was supplemental to a previous report he issued in October 2018.
- 1.4 Also, on the same day, Dr. Ibbs issued a report containing his Equitable Adjustment Analysis.
- 1.5 Due to the issuance of these reports, I have since been instructed to prepare a second report which sets out my conclusions and opinions based on a review of the delay and scheduling aspects of both Mr. Torres’ and Dr. Ibbs’ reports.

Observations and Concerns with Mr. Torres Schedule Analysis

- 1.6 As discussed above, Mr. Torres issued his first report on 18 October 2018. This report contained a Project Schedule and Costs Analysis for work performed through 28 February 2018. Mr. Torres’ Supplemental report continued the previous schedule analysis from 28 February 2018 to when JH Kelly demobilized from the Project on 28 June 2018.
- 1.7 While there are some differences, I have found there to be significant common ground between Mr. Torres and myself. These agreements include:
 - a) Methodology – Mr. Torres and I both agree that the “As-Planned vs As-Built Windows” methodology is the most suitable approach for analysing delay on this Project.¹
 - b) Baseline Schedule – Mr. Torres and I both agree that the 19 October 2016 schedule is the appropriate schedule to measure delay to construction.²

¹ See Expert report issued by Mr. Torres of C2G dated 18 October 2021 Page 13 of 38

² See Expert report issued by Mr. Torres of C2G dated 18 October 2021 Page 19 of 38

- c) The Planned Critical Path – even though it wasn't shown in the Baseline Schedule, we both recognize that the work at the Auxiliary Building would have been the likely planned critical path.³
- d) The Actual Critical Path – while again there are some differences, for the most part, we agree that the actual critical path for Phase 2 ran through the issuance of the IFC conduit design, followed by the underground conduit work at the Auxiliary Building, followed by the electrical work at the Auxiliary building.

1.8 Despite the above agreements, I do have some concerns with Mr. Torres' analysis including:

- a) In some instances, Mr. Torres' measures delay to the wrong activity in the Baseline Schedule;
- b) Due to the above, Mr. Torres has overstated delay in certain time periods and understated it in others;
- c) Also due to the above, Mr. Torres has not recognized a number of JH Kelly caused delay events. In fact, Mr. Torres has attributed every single day of delay to PG&E/AECOM.
- d) Mr. Torres and I have a difference of opinion as to the actual critical path in late summer and the fall of 2017 (18 July 2017 to 16 December 2017). In forming his opinion, Mr. Torres has ignored the contemporaneous evidence as well as JH Kelly's own witnesses.
- e) In the very last window of analysis (6 June 2018 to 28 June 2018), Mr. Torres has somehow determined that 39 days of delay were incurred in a 22 day time period. This is physically impossible.

1.9 I discuss the above concerns in detail in Sections 2 thru 5 of this report.

1.10 Due to the above concerns, it is my opinion that Mr. Torres' analysis is unreliable. Therefore, the findings and conclusions found in my First Report remain the same.

Observations and Concerns with Dr. Ibb's Equitable Adjustment Analysis

1.11 I was specifically instructed to review pages 26 to 40 of Dr. Ibb's Equitable Adjustment Analysis.

1.12 In these pages, Dr. Ibbs makes a number of statements regarding AECOM's scheduling practices that are incorrect and frankly misleading including:

³ See Expert report issued by Mr. Torres of C2G dated 18 October 2021 Page 19 of 38

- a) Dr. Ibbs states that AECOM had sole responsibility for scheduling on the Project.⁴ As will be shown, this is incorrect. JH Kelly was responsible under their Subcontract for providing AECOM the construction activities for the schedule (including durations and sequence).⁵
- b) Dr. Ibbs states that AECOM only provided JH Kelly pdf's of the schedule and, as a result, JH Kelly could not *"investigate this schedule and understand any problems fully"*.⁶ First, nowhere in the Subcontract does it state that AECOM had to provide JH Kelly with native files. Second, JH Kelly provided native construction schedules to AECOM, as required by the Subcontract.^{7 8} Flawed as they may have been, these native schedule files contained JH Kelly's construction scope of work and AECOM used these schedules to generate the overall Master schedule. Therefore, if JH Kelly wanted to investigate their own schedule, they certainly could.
- c) Dr. Ibbs states that AECOM's schedules were "unstable" which led to JH Kelly not being able to effectively plan its work.⁹ Since JH Kelly prepared the construction schedules, if there were flaws, and based on my review there were flaws, then any inefficiencies that this may have caused would be on JH Kelly.

1.13 I discuss the above concerns in detail in Section 6 of this report.

Structure of the Report

1.14 The remaining sections of this report are as follows:

- a) Section 2 – Analysis of Delay to Design (Phase 1);
- b) Section 3 – Analysis of Delay to Construction (Phase 2);
- c) Section 4 – Analysis of Delay to Commissioning (Phase 3);
- d) Section 5 – Analysis of Post Substantial Completion; and
- e) Section 6 - Observations and Concerns with Dr. Ibbs Equitable Adjustment Analysis.

⁴ See Expert report issued by Dr. Ibbs dated 18 October 2021 Paragraph 79

⁵ [AEC01036572] JH Kelly Subcontract Section 5.5.2

⁶ See Expert report issued by Dr. Ibbs dated 18 October 2021 Paragraph 51

⁷ [JHK_BURNEY_00320217] Burney 90% Deliverables – Detailed Project Schedule email dated 7 September 2016

⁸ [JHK_BURNEY_00364770-JHK_BURNEY_00364771] Master Burney Schedule from JH Kelly dated 14 October 2016

⁹ See Expert report issued by Dr. Ibbs dated 18 October 2021 Paragraph 70

2 Analysis of Delay to Design (Phase 1)

- 2.1 According to the Contract, Phase 1 work included the procurement of long lead items and the development of the engineering and construction documents. Also, according to the Contract, Phase 1 was to be completed by 7 November 2016.
- 2.2 As discussed in my First Report, it is my opinion that Phase 1 was not fully achieved until 15 November 2017 – **373 days later than planned**. Of this delay to the Phase 1 milestone, I have further opined that 35 days (9.4%) are attributable to JH Kelly. This delay was due to the late discovery of a conflict between a duct bank and an existing utility which, as I understand, JH Kelly had responsibility for finding.¹⁰
- 2.3 As discussed in my First Report, I found that the discovery of this conflict caused a 70-day delay between 24 February 2017 (the issuance of the unstamped Electrical design) and 5 May 2017 (the issuance of the IFC Conduit layout for the Auxiliary Building). I also found that this delay was concurrent to the delay caused by PG&E's new design criteria.
- 2.4 As was discussed in my First Report, these two delays (i.e., the duct bank conflict and PG&E's new design criteria) impacted not only Phase 1 but also Phase 2.
- 2.5 Should it be found that JH Kelly was responsible for finding the conflict earlier than they did, then they would share accountability for the delay. For purposes of my First Report, I assumed this to be the case and split the delay equally between PG&E and JH Kelly as shown in the table below.¹¹
- 2.6 The remaining delay, I attributed solely to PG&E's new design criteria.

Phase 1 Window	Delay Description	PG&E	JHK	AECOM	Exc. Non-Comp	Cumulative Delay
I	Changes to PG&E's Bid Design	69	0	0	0	69
II	PG&E's Preferential Change and the conflict between the duct bank and the existing utility	269	35	0	0	373
Total		338	35	0	0	

- 2.7 I note that Mr. Torres did not provide an analysis of Phase 1 and therefore did not address this delay. As will be discussed, Mr. Torres also did not address this delay in his analysis of Phase 2.

¹⁰ See Expert report issued by Mr. Lewis of HKA dated 18 October 2021

¹¹ See Expert report issued by Mr. Lewis of HKA dated 18 October 2021

Conflict between Duct Bank and Existing Utilities (35 days to JH Kelly)

2.8 As can be seen in the figure below (on the left in blue), there was a conflict shown in the 90% drawings that was missed. It is my understanding that this conflict was shown on the 30% and 60% drawings as well.¹²

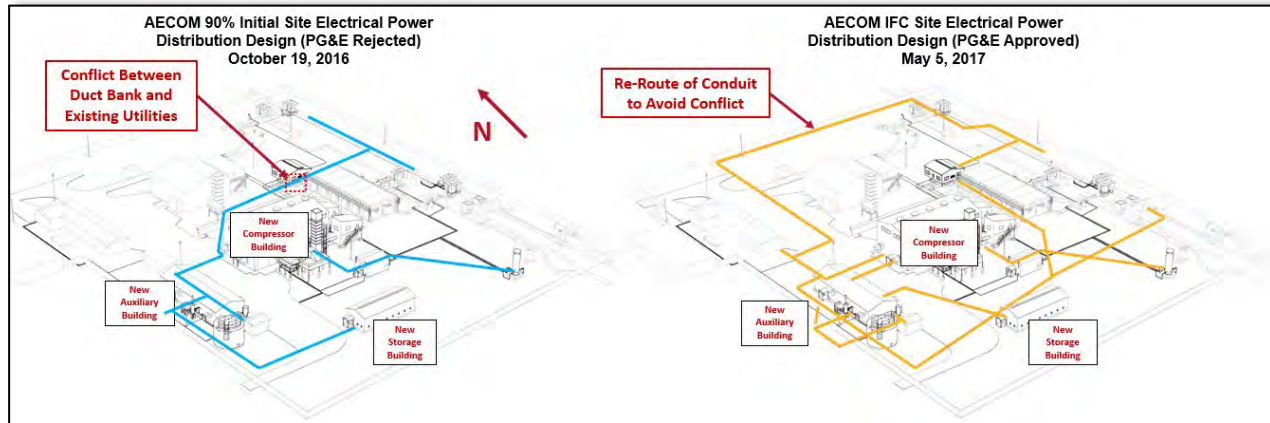


Figure 2.1 – Comparison of IFC Electrical¹³

2.9 I note that according to the Subcontract, JH Kelly was responsible to attend design review meetings for the Project as shown below.

2.3 Construction Services Generally.

2.3.1 Subcontractor shall perform all construction services efficiently and with the requisite expertise, skill and competence to satisfy the requirements of the Contract Documents and the Project Schedule.

2.3.2 At the request of Design-Builder, Subcontractor shall attend meetings with Design-Builder, Owner, and/or separate design professionals or contractors of Design-Builder or Owner to discuss design and/or construction issues regarding the Subcontractor's Work as listed in Exhibit B which may arise during the Project.

3.4 Notification of Errors.

3.4.1 Design-Builder shall notify Subcontractor of any errors, inconsistencies, or omissions Design-Builder discovers in the Work. Notwithstanding anything to the contrary in this Agreement, nothing in this Agreement shall relieve Subcontractor of responsibility for errors, inconsistencies, or omissions in the Work.

3.5 Attendance at Design Meetings.

3.5.1 Design-Builder shall afford Subcontractor and its Sub-Subcontractors the opportunity to attend all necessary design meetings with Owner, Design-Builder's Design Consultant or others furnishing portions of the design for the Project.

Figure 2.2 – Excerpts from JH Kelly Subcontract¹⁴

¹² See Expert report issued by Mr. Lewis of HKA dated 18 October 2021

¹³ I note that this Illustrative figure has been developed with annotations based on [JHK_BURNEY_00383758 (Graphic 2), JHK_BURNEY_00383791 (Ex. 6)]

¹⁴ [AEC01036572] JH Kelly Subcontract Section 2.3, 3.4, 3.5

- 2.10 I further note that, according to their bid breakdown, JH Kelly allocated \$82,122 for design review meetings.¹⁵ JH Kelly's bid submission attached to the Subcontract also specifically included performing onsite investigations to find existing underground construction (as can be seen below).¹⁶ To that end, JH Kelly's bid proposal also included \$183,116 for "Site Verification of Underground Features," which presumably is the budget to perform site investigation and to accurately document any conflicts identified to AECOM.¹⁷

10. Includes labor to research site documents and do onsite investigations to locate existing underground construction. Once located the existing elements interfering with proposed new construction will be potholed using a Vacuum truck and hand excavation. Once uncovered the element will be accurately surveyed and documented. When this is complete the exiting work will be backfilled in sand allowing the work to be quickly uncovered in the future. The survey generated will be provided to the design team for their use in routing the new work to best avoid interferences.

Figure 2.3 – Excerpts from JH Kelly Subcontract¹⁸

- 2.11 JH Kelly did in fact participate in constructability review meetings and provided comments to the 60% design on 30 August 2016 and the 90% design in November and December 2016.^{19 20} Despite this, the conflict between the duct bank and existing utilities was not caught until the 100% drawings were issued on 24 February 2017 even though Mr. Lewis has noted that the conflict was shown on AECOM's 30%, 60% and 90% drawings.²¹ In other words, there were multiple opportunities to find the conflict. Instead, the issue was not raised until after the issuance of the un-stamped electrical IFC drawings on 24 February 2017.²²

- 2.12 As was also discussed by Mr. Lewis in his report regarding this change:

"An extensive and costly re-design of the conduit duct bank layout was required in March 2017. As noted, previously, PG&E directed changes to the duct bank routing several times prior to the 90% design submittal in November 2016, including the route that conflicted with the 34" gas line. Considering that this 34" gas line was existing, then PG&E and JH Kelly personnel should have been aware of its existence and the potential conflict when PG&E's engineer suggested the conflicting duct bank route".²³

¹⁵ [JHK_BURNEY_00412056] Ex 216-Bid Summary Master-77.505 AECOM 10-7-15 Submission.xlsx, Breakdown tab, Row 42

¹⁶ [AEC01036572] JH Kelly Subcontract page 1953, item 10

¹⁷ [JHK_BURNEY_00412056] Ex 216-Bid Summary Master-77.505 AECOM 10-7-15 Submission.xlsx, Breakdown tab, Row 6 and [AEC01036572] JH Kelly Subcontract page 1961, item 12.2

¹⁸ [AEC01036572] JH Kelly Subcontract page 1953, item 10

¹⁹ [JHK_BURNEY_00182305_JHKellyProductionSet1] Burney 60% Constructability Review with JH Kelly

²⁰ [JHK_BURNEY_00126412_JHKellyProductionSet1] Burney 90% Constructability Review with JH Kelly

²¹ See Expert report issued by Mr. Lewis of HKA dated 18 October 2021 Paragraph 91

²² See Expert report issued by Mr. Lewis of HKA dated 18 October 2021 Paragraph 91

²³ See Expert report issued by Mr. Lewis of HKA dated 18 October 2021 Paragraph 91

- 2.13 As discussed in my First Report, between 24 February 2017 and 5 May 2017, the actual critical path was through the completion of the electrical design such that the IFC Conduit layout could be issued.²⁴ Without this drawing, JH Kelly could not commence the critical underground conduit at the Auxiliary Building.
- 2.14 As also discussed in my First Report, the reason the electrical design could not be finalized was because:
- a) PG&E implemented preferential changes to the electrical design including new design criteria;²⁵ and
 - b) AECOM had to reroute the duct bank in the final drawings due to the conflict.²⁶
- 2.15 Should it be found that JH Kelly was responsible for catching the conflict earlier than they did, then they would share accountability for the delay. For purposes of this report, I assumed this to be the case. However, as I do not have the data available to me to determine how long it took for AECOM to perform the reroute in the design, I have split the delay equally between PG&E and JH Kelly (i.e., 35 days to PG&E and 35 days to JH Kelly) as it seems that approximately half of the added duct bank, and the related added wiring and conduit, is related to the rerouting around the existing conflict.

²⁴ See Expert report issued by Mr. Scott dated 18 October 2021 Paragraph 5.63

²⁵ See Expert report issued by Mr. Scott dated 18 October 2021 Paragraph 5.63

²⁶ See Expert report issued by Mr. Scott dated 18 October 2021 Paragraph 5.63

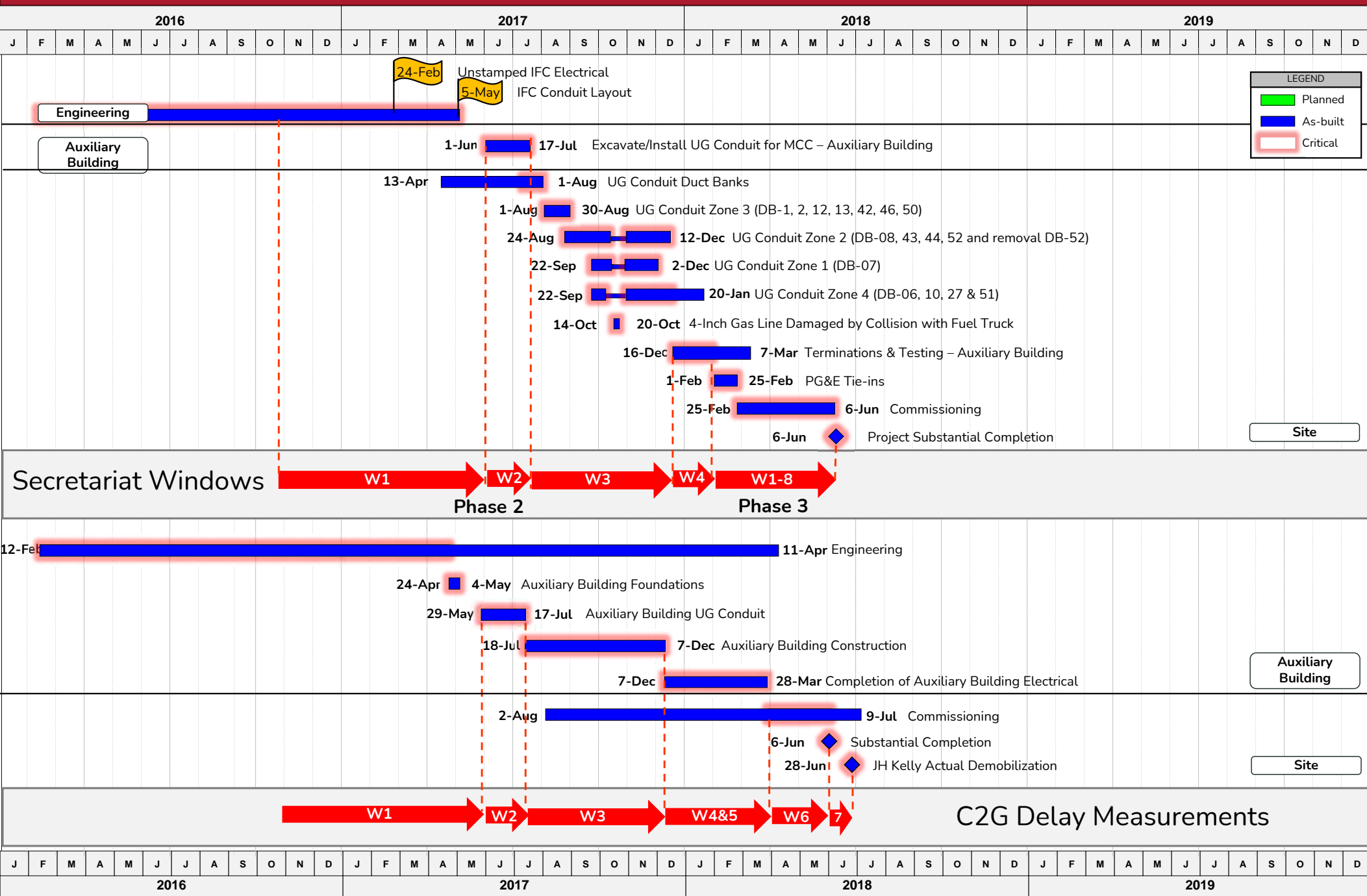
3 Analysis of Delays to Construction (Phase 2)

- 3.1 As discussed in the First Report, in my opinion the actual critical path for Phase 2 ran through the issuance of the IFC conduit design, followed by the underground conduit work at the Auxiliary Building, followed by the electrical work (including the duct banks) at the Auxiliary building before it shifted out of construction (Phase 2) on 2 February 2018 - **150 days later than planned**. Of this delay, I found that 61 days (41%) are attributable to JH Kelly as follows:
- a) The late discovery of a conflict between the duct bank and existing utility (32 days);
 - b) The lack of resources performing critical underground electrical at the Auxiliary Building in June and July 2017 (15 days);
 - c) The 4" Gas Line damage (6 days); and
 - d) The slower than planned progress pulling wire and performing terminations (8 days).
- 3.2 This section of my report is roughly corresponds with the schedule analysis contained in Mr. Torres' First report which was through 28 February 2018.
- 3.3 The figure on the following page is a comparison of the different time periods in our analysis. As can be seen, my Phase 2 analysis corresponds with Mr Torres' delay measurements 1 thru 5.

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Secretariat Burney Compressor Station K-2 Replacement Project

Figure 3.1 - Critical Path Comparison



Phase 2 Window I – Start of the UG Conduit for the Aux Bldg. (17 Oct 2016 to 1 Jun 2017)

- 3.4 This window corresponds with Mr. Torres' Delay Measurement 1 (which is through 29 May 2017).
- 3.5 As discussed in my First Report, it is my opinion that the actual critical path during this time period ran through the late IFC electrical design which delayed the start of underground electrical conduit installations at the Auxiliary Building. Due to this delay, the underground electrical conduit installations at the Auxiliary Building did not start until 1 June 2017 – **64 days later than planned** (1 June 2017 – 29 March 2017 = 64 days).²⁷
- 3.6 For the same time period, Mr. Torres agrees that the design for the Auxiliary Building underground conduit was on the actual critical path.²⁸
- 3.7 I note that there is a slight difference in the end date of our time period, as Mr. Torres seems to find that the underground electrical conduit for the Auxiliary Building started on 29 May 2017.²⁹ However, based on my review of the Project records, I note that the daily report for 29 May 2017 does not exist, as this date is the Memorial Day Holiday. The daily reports thereafter, for 30 and 31 May 2017, record that JH Kelly performed layout activities. Based on what I can tell, excavating for the Auxiliary Building had yet to commence on these dates.^{30 31}
- 3.8 As discussed in my First Report, according to the as-built record, excavation for the Auxiliary Building did not commence until 1 June 2017. On that same day, the first delivery of conduit for the Auxiliary Building arrived.³² As can be seen in the figure below, some of the conduit was immediately installed under the Auxiliary Building.

²⁷ [JHK_BURNEY_00373392-JHK_BURNEY_00373402] Baseline Schedule Activity ID: A2510 "Install underground conduit for MCC" planned start 29 March 2017

²⁸ See Expert report issued by Mr. Torres of C2G dated 18 October 2021 Page 27 of 38

²⁹ See Expert report issued by Mr. Torres of C2G dated 18 October 2021 Page 29 of 38

³⁰ [JHK_BURNEY_00337120-JHK_BURNEY_00337121] JH Kelly Daily Report of 30 May 2017

³¹ [JHK_BURNEY_00337204-JHK_BURNEY_00337205] JH Kelly Daily Report 31 May 2017

³² [JHK_BURNEY_00337166-JHK_BURNEY_00337167] JH Kelly Daily Report of 1 June 2017



Figure 3.2 - Progress Photo of first conduit rack beneath Auxiliary Building as at 1 June 2017³³

3.9 While I believe that I am correct as to when the excavation and the installation of the underground conduit for the Auxiliary Building commenced, the slight difference in start dates is not material to either analysis.

3.10 The main difference between our analyses during this time period, is that Mr. Torres measures delay to the planned start of the “Conduit” activity in the Baseline Schedule (which according to the schedule, was planned to start on 13 March 2017 as can be seen below).³⁴

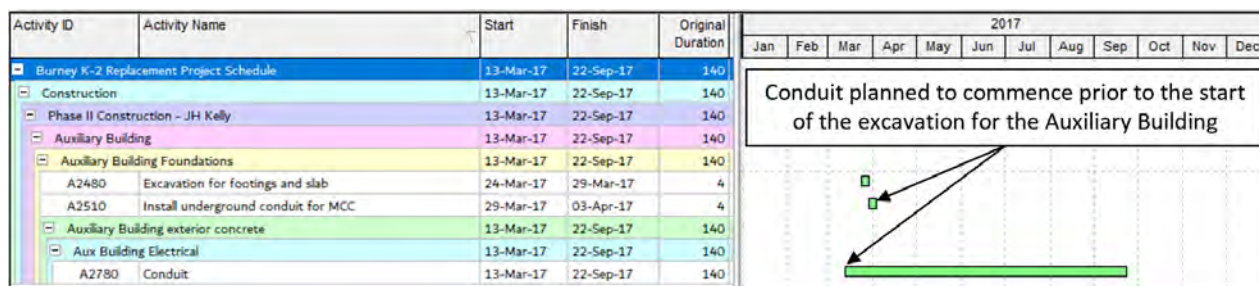


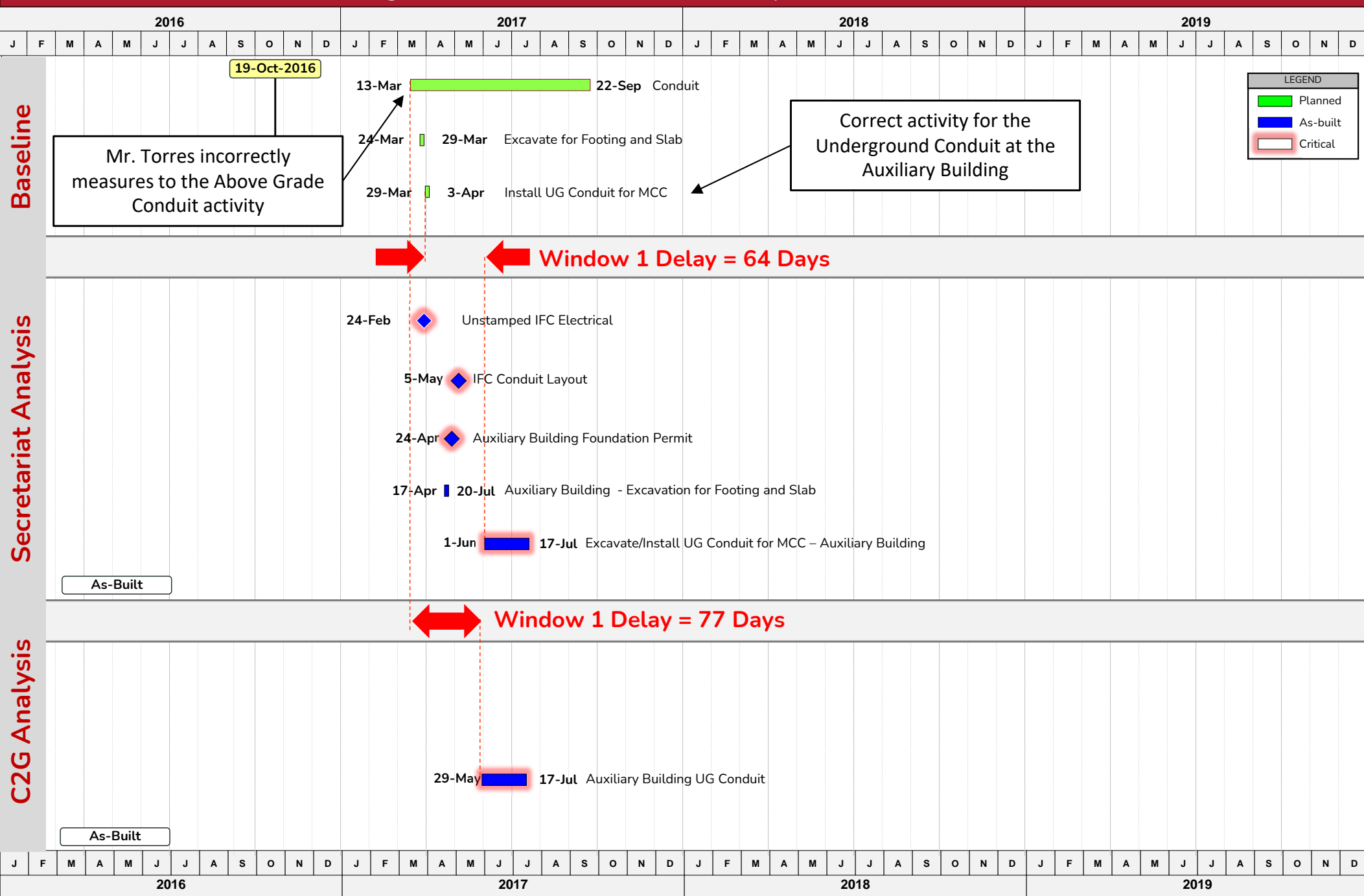
Figure 3.3 – Excerpt of Baseline Schedule

³³ [AEC00289331-AEC00289339] See AECOM Daily Report of 1 June 2017

³⁴ [JHK_BURNEY_00373392-JHK_BURNEY_00373402] Excerpt from Baseline Schedule

- 3.11 In my opinion, it is not correct to measure to this activity as this “Conduit” activity is meant to capture the above grade conduit. This is evident by the fact that it was planned to commence prior to the start of the excavation for the Auxiliary Building (as shown in the figure above). It is obviously impossible to start installation of below ground conduit before the excavation of the ground occurs. Therefore, the “Conduit” that Mr. Torres measures to cannot only represent the underground electrical conduit at the Auxiliary Building,
- 3.12 More importantly, there is a specific activity for the underground conduit underneath the Auxiliary Building, called ‘Install underground conduit for MCC’ (as can also be seen in the figure above) that is logically linked to the auxiliary building foundations, backfilling and pouring of the slab above the underground conduit. In my opinion, this is the correct activity to measure delay to.
- 3.13 Due to the incorrect measurement, Mr. Torres has assessed there to be more delay in this time period (77 days) than in my opinion was actually incurred (64 days). As will be discussed, this incorrect measurement has a knock-on impact in the next time period.
- 3.14 Despite the above difference in our delay measurements, Mr. Torres and I both attribute the delay to the late IFC electrical design. However, Mr. Torres has not apparently attempted to find the cause of this delay which in my opinion was due to both PG&E’s preferential changes to the Electrical design as well as the late discovery of a conflict between a duct bank and existing utilities.
- 3.15 I have discussed the late discovery of the conflict between the duct bank and existing utilities in detail in my First Report and in Section 2 above. For sake of brevity, I will not repeat that discussion here.
- 3.16 A graphical comparison of Mr. Torres’ Delay Measurement 1 and my Window 1 is shown at the figure on the following page.

Figure 3.4 - Difference in Analysis of Window 1



Phase 2 Window II – UG Conduit Installation (1 Jun 2017 to 17 Jul 2017)

- 3.17 This window corresponds with Mr. Torres' Delay Measurement 2 (which is also through 17 July 2017).
- 3.18 We both agree that the actual critical path during this time period ran through the installation of the underground electrical conduit at the Auxiliary Building and we both agree that this work was delayed until 17 July 2017 (or 105 days later than planned).³⁵
- 3.19 Mr. Torres and I also found similar causes of delay:
- a) I found that the work was delayed 7 days due to the discovery of boulders (while Mr. Torres found it to be 8 days); and
 - b) I also found that an additional 19 days was incurred due to the additional scope stemming from PG&E's preferential changes (Mr. Torres found the delay to be 20 days).
- 3.20 I do not find the above differences to be that material to either analysis.
- 3.21 The main difference between our analyses is that I found an additional delay to have been incurred which I have attributed to JH Kelly's slower than planned progress installing the underground conduit underneath the Auxiliary Building. As discussed in my First Report, I calculated this delay to be 15 days.³⁶
- 3.22 Mr. Torres has not found this delay. In my opinion, this is due to Mr. Torres' incorrect delay measurement in the previous time period. As already discussed, to calculate delay in the prior window, Mr. Torres measured to the above grade "Conduit" activity. As a result of this miscalculation, Mr. Torres found more delay to have been incurred in Window 1 than I did (77 days vs 64 days).
- 3.23 This thirteen-day difference plus the one day difference in the discovery of boulders (8 days vs 7 days) and the one day difference due to PG&E's added scope (20 days vs 19 days) equals the additional fifteen days of delay that I found in this time period.
- 3.24 Again, this is substantiated as follows:

³⁵ As-Built Schedule Activity ID ELEC00090 "Excavate/Install UG Conduit for MCC - Auxiliary Building" actual finish 17 July 2017

³⁶ See Expert report issued by Mr. Scott dated 18 October 2021 Paragraph 6.83



- a) The first racks of Auxiliary Building underground conduit was delivered on 1 June 2017.³⁷
- b) JH Kelly completed the underground conduit at the Auxiliary building on 17 July 2017 – 47 calendar days later (18 July 2017 – 1 June 2017 = 47 days).³⁸
- c) Considering the planned duration of 6 calendar days to do this work (3 April 2017 – 29 March 2017), JH Kelly took 41 calendar days longer than originally anticipated (47 days – 6 days = 41 days).³⁹
- d) Considering the 7-day delay caused by the discovery of rock and subsequent boulder excavation, and the 19-day delay caused by PG&E's changed scope (for a total of 26 days), this means that JH Kelly lost an additional 15 days of delay in Window II (41 days – 26 days = 15 days).

3.25 Because Mr. Torres did not measure to the correct activity in the previous window, he has understated the delay in this time period causing him to miss this delay.

3.26 From the documents that are available to me, it is unclear what caused this delay. I note that at the time the underground conduit started for the Auxiliary Building, JH Kelly only had 4 electricians on site to install conduit (as discussed in my First Report).⁴⁰ It is also clear from the figure below that more electricians were needed to complete this work as they were eventually added later.

3.27 Also, a review of the daily reports, indicates that these workers were not installing conduit at the Auxiliary Building every day even though the schedule at the time (dated 9 July 2017), showed this work as critical. Instead, it seems the labor was moving around the site rather than focusing on critical work.

3.28 I also note that JH Kelly delivered the last prefabricated conduit assemblies on 6 July 2017 which is longer than they forecasted back on 17 May 2017 (when they stated in a meeting that the delivery would be made at the latest by 1 June 2017).⁴¹

³⁷ [JHK_BURNEY_00337166-JHK_BURNEY_00337167] JH Kelly Daily Report 1 June 2017

³⁸ [JHK_BURNEY_00337162-JHK_BURNEY_00337163] JH Kelly Daily Report 17 July 2017

³⁹ [JHK_BURNEY_00373392-JHK_BURNEY_00373402] Baseline Schedule Activity ID: A2510 "Install underground conduit for MCC" planned finish 3 April 2017

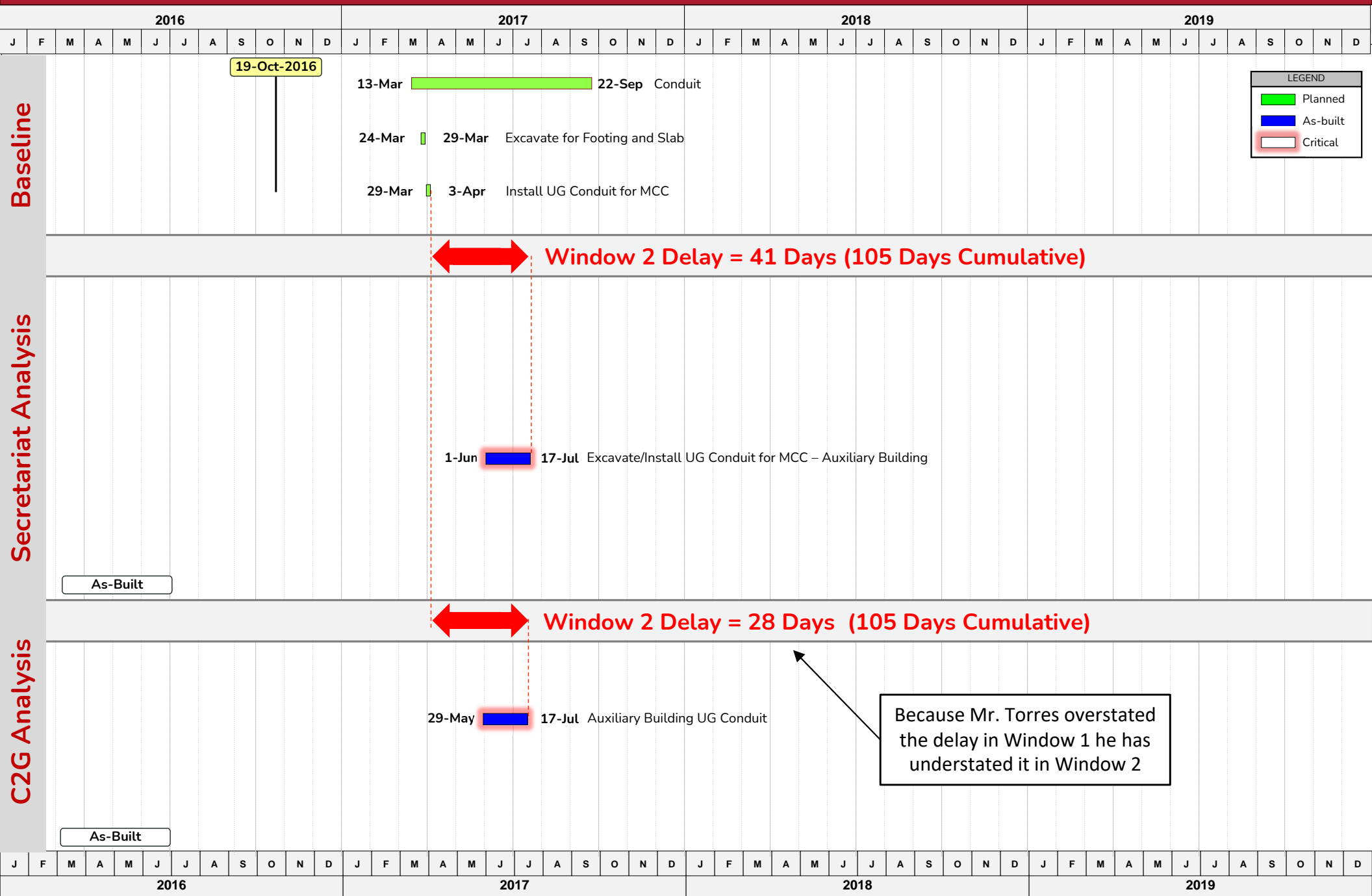
⁴⁰ See Expert report issued by Mr. Scott dated 18 October 2021 Paragraph 6.79

⁴¹ [JHK_BURNEY_00023303-JHK_BURNEY_00023305] 2017-05-17-BURNEY K2 MEETING MINUTES



- 3.29 Based on all of the above, I have attributed this delay to JH Kelly's slower than planned productivity.
- 3.30 A graphical comparison of Mr. Torres Delay Measurement 2 and my Window 2 is shown at the figure on the following page.

Figure 3.5 - Difference in Analysis of Window 2



Phase 2 Window III – Installation of UG Duct Banks (18 Jul 2017 to 16 Dec 2017)

- 3.31 This window corresponds with Mr. Torres' Delay Measurement 3 (which is through 7 December 2017).
- 3.32 Mr. Torres and I have some significant differences in this window, in that, it is his opinion that the critical path during this time period ran through the completion of the Auxiliary Building. It is his further opinion, that due to their alleged mitigation efforts, JH Kelly was able to make up time during this work (an alleged 29 days).
- 3.33 While I agree that JH Kelly was able to complete the structure of the Auxiliary Building faster than planned, the duct bank work (which consists of underground conduit runs encased in reinforced concrete) became delayed due to the increased complexity and scope that was a result of PG&E's preferential changes to the Electrical design.
- 3.34 As a matter of scheduling principle, if there are two competing critical paths and one path progresses and the other does not, then the former will almost immediately drop off and the later becomes the sole critical path. In other words, as JH Kelly was progressing the Auxiliary Building faster than planned, the duct banks were becoming delayed. As a result, it is my opinion this would have caused them to become the sole critical path during this time frame.
- 3.35 This further supported by JH Kelly's own Mr. Lee who testified that:
"The electrical design was released piecemeal from a duct bank perspective because the duct banks come up inside of the auxiliary building and really are the start of the control network for the entire site. So laying that logic through the project is main critical path."⁴²
- 3.36 I also note that JH Kelly's own schedules showed the Auxiliary electrical work as being on the critical path contemporaneously during this time period as can be seen below.

⁴² See Deposition of Mr. Lee dated 28 September 2021 Volume 2 Page 305

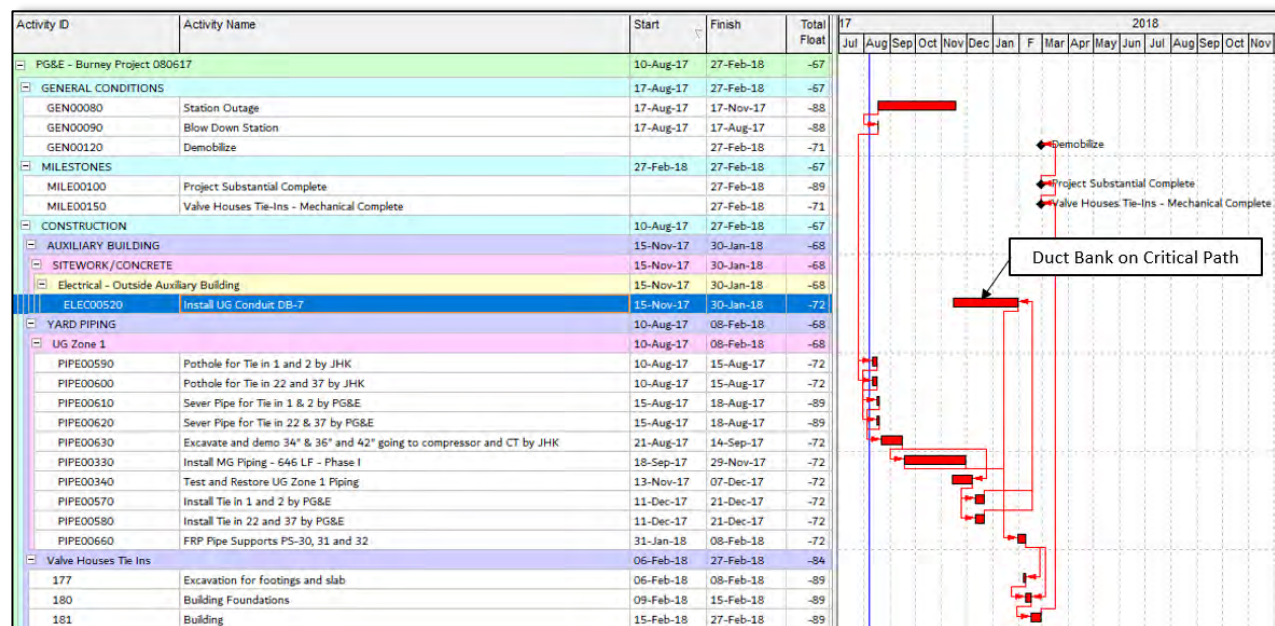


Figure 3.6 – Progress Schedule provided in Dr. Ibbs Exhibit 40 Data Date 6 August 2017⁴³

3.37 Based on the above, I do not agree that any critical time was gained in this period. In fact, in my opinion, the Project was delayed 25 days in this window.

3.38 While I have attributed most of the delay in this time period (i.e., 19 days) to the additional and increased duct banks resulting from PG&E's preferential electrical changes, I did attribute 6 days to JH Kelly due to a safety incident on 14 October 2017, which shut down the works between 14 and until 20 October 2017 (20 October 2017 – 14 October 2017 = 6 days).

3.39 As discussed in my first delay report, this event shut down the project and caused a stoppage of the work on the Project as noted in the schedule delay log (excerpted below).

"All work on the east and north east side of the station stopped due to the fuel truck hitting the 4" gas line. PG&E had to blowdown the line and replace the damaged valve. This effected the Demo work on the Main Gas line at Tie-in 22 and 37 locations and DB 7 excavation activities. The gas line valve was replaced by 10-16-17 and line was saved out. PG&E would not let AECOM continue any construction activities on the east and North east side of the station until cross compression was completed on 10-20-17"⁴⁴

3.40 It is noted that the 4" gas line damage was actually not the first safety incident on site. In fact, on 20 July 2017, a 20-yard frameless end dump truck from Packway Materials (loaded with ¾"

⁴³ See Expert report issued by Dr. Ibbs dated 18 October 2021 Exhibit 40, File "BCS 090317 6-10s VN_Clean.xer"

⁴⁴ [AEC00610570] AECOM Schedule Delay Log Item 11

road base rock) tipped over onto its right side. Fortunately, no injuries or PG&E property damage resulted from the incident.⁴⁵

3.41 By September 2017, 3 near misses had occurred and a total of 103 safety observations were recorded.⁴⁶ Another notable near-miss occurred on 28 September 2017 during rock excavations, where a hoe-ram chisel point slipped off a rock and hit the south pipe causing a tear in the “mastic” coating about 3 inches long.⁴⁷ Due to this event, work was stopped immediately and a PG&E inspector examined the spot by cutting away a chunk of the coating, washing the pipe with water, manually and visually inspecting the pipe.⁴⁸

3.42 Due to these issues, PG&E wrote to AECOM on 3 October 2017 stating that they had lost faith in JH Kelly’s ability to safely excavate at the site (as can be seen below).

-----Original Message-----
 From: Whyte, Ronald
 Sent: Tuesday, October 03, 2017 12:30 PM
 To: Delledera, Steven
 Cc: Keferl, Daniel; Chamberlain, Bryce
 Subject: FW: Excavation update 10/2 Burney

Steven,

For our conference call today.

I wanted to get your take on things. I along with Bryce and Dan Keferl have lost faith in JH Kelly to safety and efficiently excavate at Burney. It's been two weeks since we provided them clear direction on what needed to be done to make the cut and cap excavations safe. Since then only two of the four excavations have been addressed. As a result we have delayed the cut and cap from last Friday and will not be complete with all of the cut and caps until Friday. The pipeline outage is currently schedule to start next week from 10/9 to 10/17 and we do not see any way that JH Kelly will be ready for this outage. Because of another clearance and the need for cross compression if the pipeline outline is not completed by 10/19 it must be delayed and cannot start before 10/25.

Before the outage can start JH Kelly must complete all excavation, so approximately 600 feet of asbestos coating can be mitigated, as well as fabricate and hydrotest a cross tie piece. The way things have been going I don't think JH Kelly will even be ready for 10/25. I think we need to send some type of non-conformance letter to AECOM. They need to quickly mitigate the problems with JH Kelly or I believe we need to consider bringing in another contractor to perform the work.

We will discuss more on our call at 1:00.

Ron

Figure 3.7 – PG&E Email Excavation Updates dated 3 October 2017⁴⁹

⁴⁵ [BURNEY000110718-BURNEY000110719] AECOM Monthly Report July 2017, Safety Incident Report Page 91-92

⁴⁶ [BURNEY000088021] AECOM Monthly Report for September 2017, page 17 of 48 near misses include “fall protection/ladder misuse, backing without a spotter, improper rigging, working under suspended load, missing rebar caps, inadequate PPE for task, welding and hot work lack of screens and fire watch, missing or improper use of barrier tape and unauthorized entry, and positive steps taken to protect equipment while grinding”

⁴⁷ [BURNEY000088021] AECOM Monthly Report for September 2017, page 17 of 48

⁴⁸ [BURNEY000088021] AECOM Monthly Report for September 2017, page 17 of 48

⁴⁹ [BURNEY000437800_PGEProductionVOL003] Excavation Update 10/2 Burney Email

- 3.43 Also as a result of these safety issues, and as discussed in the deposition of Mr. Apostolakis, PG&E became overly cautious and, as a result, required JH Kelly to perform hand excavation instead of mechanical excavation when the excavation was near a live line.

*"This is solid rock that we have to put a duct bank in, so we have to remove that rock, okay? So if you go and look at the pictures of duct bank 52, okay, you'll see that we used at certain places, some kind of mechanical device to remove the rock. And when we got within close to that valve house and where that toward the pipeline, they said, no, we can't do that anymore. You got to do it by hand. And that was during the -- after the incident on October 14th. It was predicated off of hitting the gas line, the four-inch 11 gas line."*⁵⁰

- 3.44 This was also documented in a letter sent to JH Kelly on 15 November 2017 in which it was noted that the gas line incident caused "significant delay" as can be seen below.⁵¹

Additional Costs and Schedule Extension

Much has changed on this project that neither AECOM nor JH Kelly could have reasonably expected during the RFP and proposal process. It is understood that both AECOM and JH Kelly have incurred schedule and cost impacts and as noted previously in this letter, AECOM is actively seeking both schedule and cost recovery for the project.

However, as noted and communicated to JH Kelly previously, JH Kelly has not complied with the requirements of their contract nor approached this project with the level of professional standards

expected when AECOM selected JH Kelly as its contractor. For example, JH Kelly has not properly staffed the project in accordance with the pricing and execution timeline included in its proposal. AECOM expects JH Kelly to continually maintain appropriate levels of skilled craft to complete the remaining construction activities as expeditiously and safely as possible. In addition, AECOM has informed JH Kelly on multiple occasions, as early as February 2017 that JH Kelly's CPM and 3 week look-ahead schedules were insufficient and did not meet the expectations of AECOM or PG&E. Additionally, construction work packages were promised by JH Kelly before the work started, but the first packages were not produced until roughly 8 months into the second season. Finally, JH Kelly's safety performance has been unacceptable until late, especially considering the gas line damage that caused significant delay to the project. These and other performance shortcomings continued through at least August 2017 after which improvement in these areas has only been seen in the last two months or so.

While AECOM does have concerns about JH Kelly's performance on this project, we have observed improvement and remain committed to the success of our AECOM/JH Kelly team and to the successful completion of this project. At the appropriate time, we will need your input and analysis on cost and schedule impacts in order to obtain the additional compensation we are due.

Sincerely,



Don Divers
 Senior Vice President
 AECOM Design, Consulting Services
 don.divers@aecom.com
 (626) 205-0938

Figure 3.8 - AECOM Letter dated 15 November 2017⁵²

⁵⁰ See Deposition of Mr. Apostolakis dated 29 October 2021 Page 96

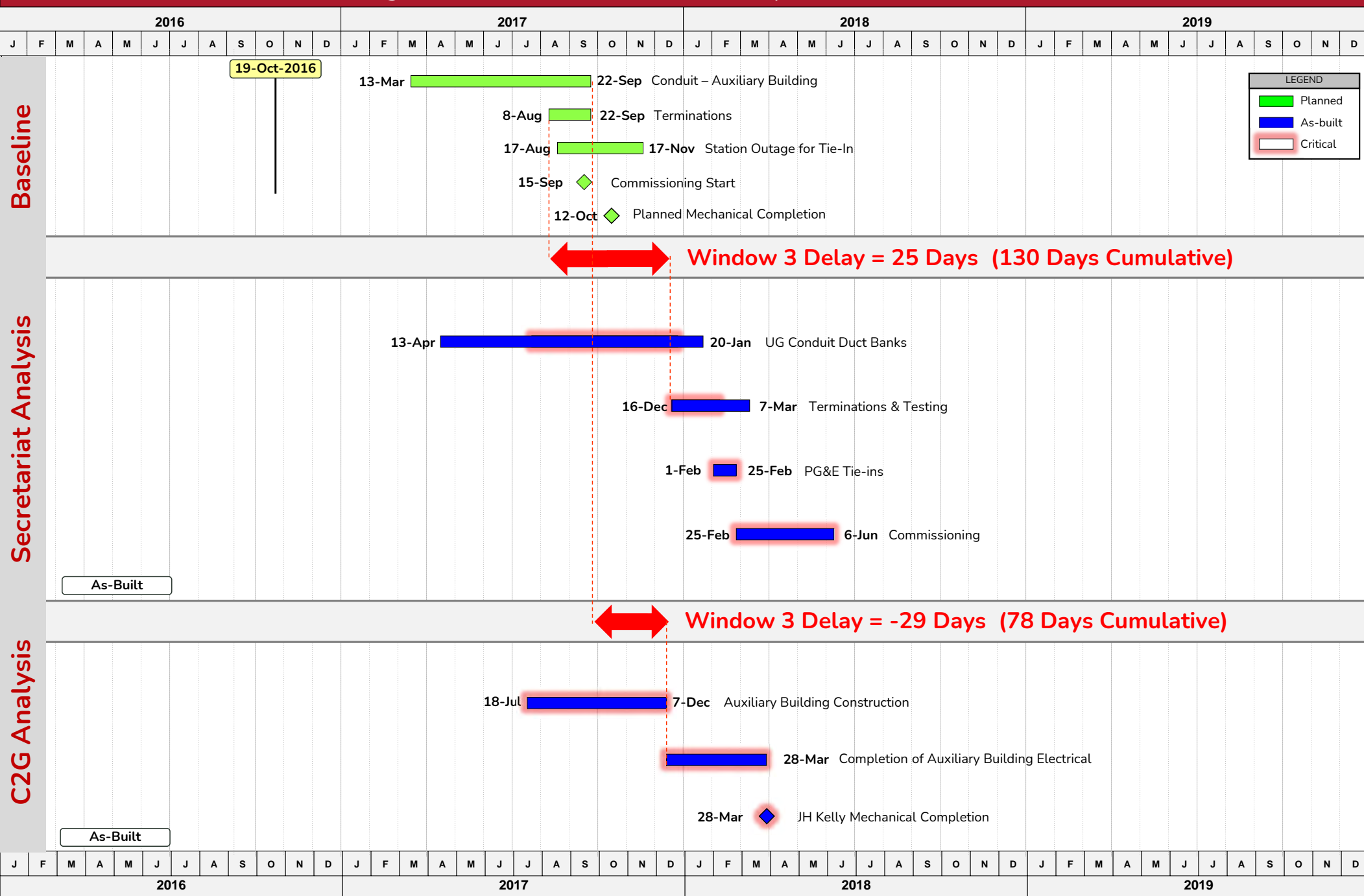
⁵¹ [AEC00995459-AEC00995463] AECOM Letter to JH Kelly re Delay Notices dated 15 November 2017

⁵² [AEC00995459-AEC00995463] AECOM Letter to JH Kelly re Delay Notices dated 15 November 2017



- 3.45 Based on the above, it seems plausible that JH Kelly was responsible for some of the time it took to perform the critical duct bank work. For certain, it would have contributed to JH Kelly's claimed inefficiencies.
- 3.46 However, given the documents made available to me, in terms of delay, I have only attributed the 6-day duration that the Project was shut down between 14 and 20 October 2017 to JH Kelly.
- 3.47 A graphical comparison of Mr. Torres Delay Measurement 3 and my Window 3 is shown at the figure on the following page.

Figure 3.9 - Difference in Analysis of Window 3



Phase 2 Window IV - Pulling Wire and Performing Terminations (16 Dec 2017 to 2 Feb 2018)

- 3.48 This window corresponds with Mr. Torres' Delay Measurement 4 and 5 (which are both through 28 March 2018).
- 3.49 Mr. Torres and I both agree that the critical path during this time period, at least in part, was through the remaining electrical scope.
- 3.50 In my opinion, the work was delayed 20 days in this time period as follows:
- a) 12 days due to an agreed project shutdown; and
 - b) 8 days to slower than planned progress performing the electrical terminations.
- 3.51 Mr. Torres opines that there was first a 111-day delay completing the electrical scope of work.⁵³ If true, this would create a day for day delay for the duration of this time period. Mr. Torres then states that JH Kelley managed to mitigate 20 days of this delay by performing other work concurrently.
- 3.52 On the face of it, Mr. Torres' calculation doesn't make sense. JH Kelly was working on the electrical scope throughout this window. Therefore, it is not plausible that they would not make any progress at all during this time.
- 3.53 One reason for Mr. Torres' miscalculation, is the fact that he incorrectly opined that the Project gained time in the prior window (as already discussed). Had Mr. Torres found that even no time was lost in the last time period (instead of gained time), then his delay calculation in this window would have been reduced by 29 days (and he therefore would not have found a day for day delay).
- 3.54 Further, Mr. Torres opines that the electrical work was critical until 28 March 2018. Given that the electrical work was complete such that Project received Permanent Power on 27 February 2018, it is unlikely that electrical work would have remained critical past this date. Therefore, Mr. Torres claimed to the electrical work is overstated.
- 3.55 I also find Mr. Torres' analysis during this time period to be only discussed at a summary level, as there is no specificity to his many of his causes of delay as shown in the figure below.⁵⁴

⁵³ See Expert report issued by Mr. Torres of C2G dated 18 October 2021, Page 28 of 38

⁵⁴ See Expert report issued by Mr. Torres of C2G dated 18 October 2021 Page 29 of 38

The cause of the extended Auxiliary electrical installation was due to several reasons:

1. Unplanned winter weather,²⁹
2. Design changes (electrical),
3. Waiting for material or others,
4. Project Change Orders,
5. Unplanned holiday shutdown of 2017/2018

Figure 3.10 - Excerpt form Mr. Torres Report

- 3.56 As can be seen from the above, Mr. Torres has not shown how the specific events impacted the schedule, which is insufficient for a proper schedule analysis. Further, outside of the unplanned holiday shutdown, I cannot find any discrete delay calculations by Mr. Torres. Instead, it appears that Mr. Torres has lumped them all together as the cause of his 111 days of delay.
- 3.57 Regarding the unplanned holiday shut down, I note that JH Kelly requested that PG&E agree to the holiday shut down as shown in the email below dated 20 November 2017.

From: Sean O'Farrell [<mailto:SOFarrell@jhkelly.com>]
Sent: Monday, November 20, 2017 11:32 AM
To: Apostolakis, Peter
Subject: Christmas Break

Peter

Do we have a definitive answer on the work schedule between Christmas and New Year? I know a lot of families plan their Christmas Holiday schedules when they are all together for Thanksgiving and I would like to be able to let them know what our schedule is before they leave this week.

Thanks,

Sean O'Farrell
 Sr. Project Manager
 JH Kelly, LLC

Figure 3.11 – JH Kelly email dated 20 November 2017 ⁵⁵

- 3.58 It is my understanding that this delay was agreed between the parties as being excusable but non compensable.⁵⁶ Despite this agreement, Mr. Torres has determined this delay (as with all others alleged in his report) to be compensable to JH Kelly.^{57 58}

⁵⁵ [JHK_BURNEY_00162505_JHKellyProductionSet1] JH Kelly email dated 20 November 2017

⁵⁶ [JHK_BURNEY_00162505_JHKellyProductionSet1] Email from JK Kelly dated 20 November 2017

⁵⁷ See Expert report issued by Mr. Torres of C2G dated 18 October 2021 Page 34 of 38

⁵⁸ See Expert report issued by Mr. Torres of C2G dated 18 October 2021 Page 34 of 38

- 3.59 For the remaining 8 days of delay in this time period, I have attributed this to JH Kelly's slower than planned progress pulling wire and performing terminations. In my First Report, I noted that this delay could potentially be due to the added scope caused by PG&E's preferential changes. However, because JHK's contemporaneous project documentation is not sufficiently detailed, it is not possible for me to allocate a portion of this time to PG&E. Further, while Mr. Torres does state in his Supplemental Report that "design changes (electrical)" caused delay in this time period, there is no analysis or even quantification of this delay.⁵⁹ It is therefore still my opinion that JH Kelly is responsible for the 8 days of delay.
- 3.60 As can be seen in the figure below, JH Kelly commenced wire terminations at the beginning of this window, but did not make substantial progress until after the agreed Project Shut Down over the winter holidays.

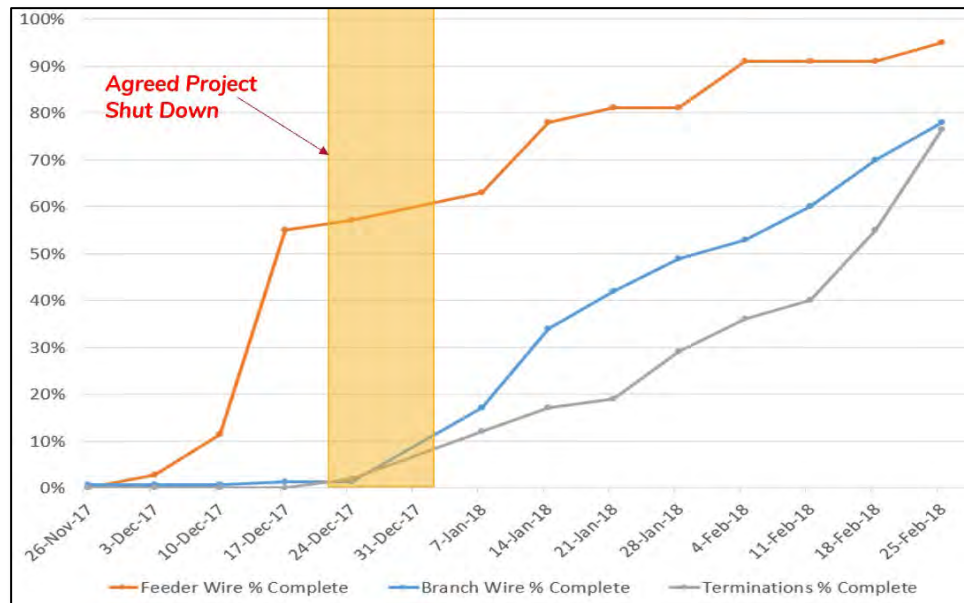


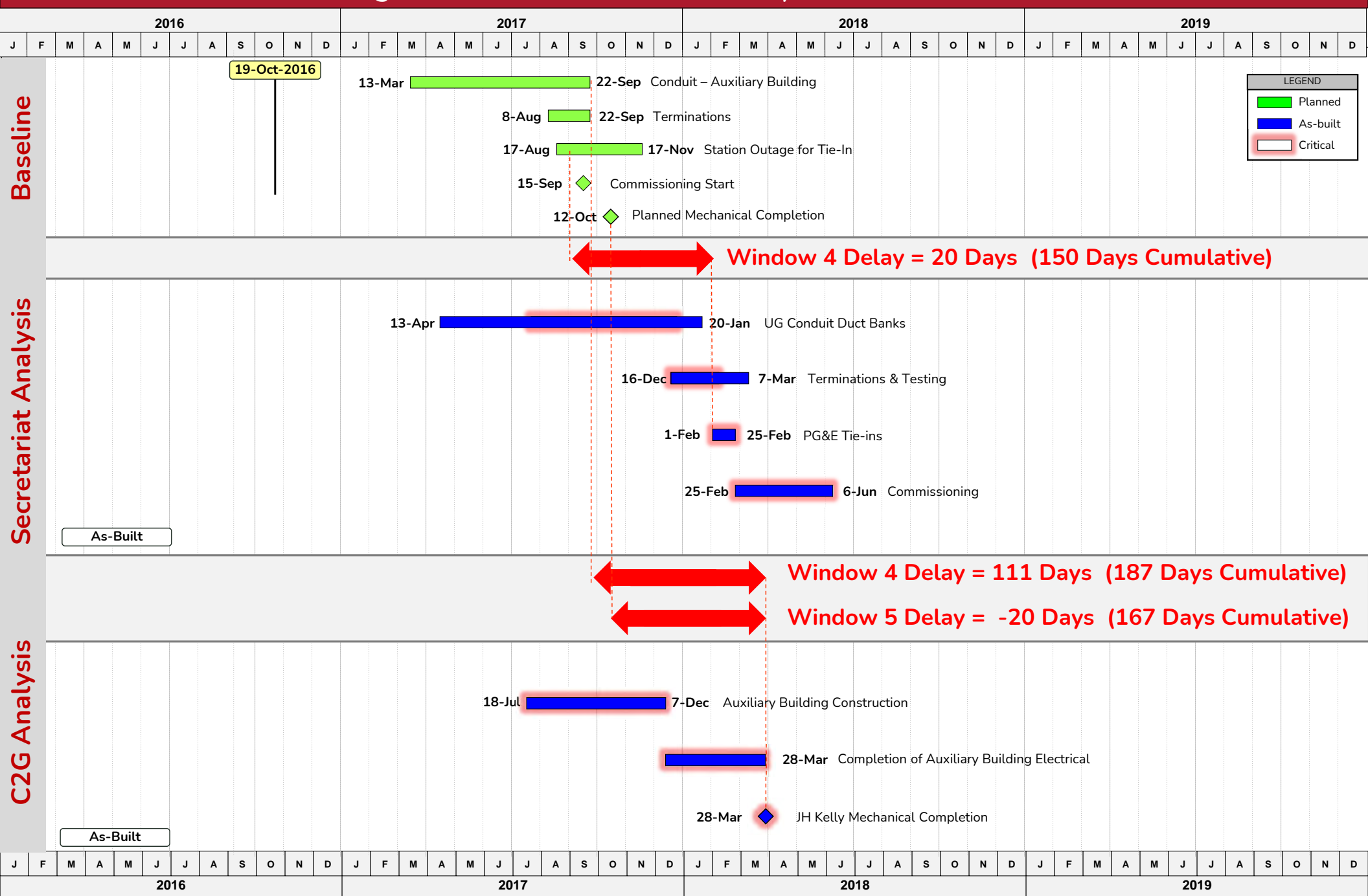
Figure 3.12 - Progress for Wire and Terminations⁶⁰

- 3.61 A graphical comparison of Mr. Torres Delay Measurements and my Window 4 is shown at the figure on the following page.

⁵⁹ See Expert report issued by Mr. Torres of C2G dated 18 October 2021 Page 29 of 38

⁶⁰ [BURNEY000371663] Progress as reported in AECOM's February 2018 monthly report quantities, Page 47/138

Figure 3.13 - Difference in Analysis of Window 4



4 Analysis of Delays to Commissioning (Phase 3)

- 4.1 This phase corresponds with Mr. Torres' Delay Measurement 6 (which is through 6 June 2018).
- 4.2 While I find Mr. Torre's analysis during this time to lack specificity, I do agree that the majority of the delay during this time was not attributable to JH Kelly.
- 4.3 In fact, as discussed in my First Report, the only delay that I have attributed to JH Kelly during this time was 9 days as a result of the damage to the strainer for the Compressor. The strainer is designed to catch debris in the pipe spool to avoid potentially damaging equipment.
- 4.4 As Mr. Torres has not analyzed this time period with any level of granularity, he has not recognized this delay.
- 4.5 In any event, as discussed in my First Report, on 4 May 2018, in advance of the Compressor start-up and 100-hour test required for Substantial completion, this Strainer was removed.
- 4.6 As the strainer was removed for cleaning, it was damaged during re-installation on 6 May 2018 by JH Kelly.⁶¹ It is my understanding that this damage was caused because there was not enough clearance for the strainer as the pipe spool shifted at some point between initial construction and 6 May 2018.⁶²
- 4.7 As JH Kelly caused the damage to the strainer, I have attributable the delay to them.
- 4.8 I note that AECOM contemporaneously noted in its Commissioning Plan of the Day that the strainer was difficult to repair and was on the critical path to start the compressor.⁶³
- 4.9 The strainer was repaired and re-installed on 11 May 2018 as can be seen in the commissioning daily report below.⁶⁴

⁶¹ [AEC00359932-AEC00359935 (5-7-18), AEC00340345-AEC00340348 (5-6-18)] See Commissioning Plan of the Day for 7 May 2018 section K and Commissioning Plan of the Day for 6 May 2018 section V

⁶² [AEC00610570] AECOM Schedule Delay Log item 49

⁶³ [BURNEY000377902] AECOM April 2018 monthly report page 25

⁶⁴ [AEC00428325-AEC00428325, AEC00428325-AEC00428326 (sect K)] Commissioning Plan of the Day for 11 May 2018 section K

<p>VII. COMPLETED ACTIVITIES</p> <ol style="list-style-type: none"> 1. Pulled actuator for FG-426 to fix stem seal leak. 2. Finished metal filler surface on strainer. 3. Re-installed spool and strainer assembly – needs final torqueing for downstream flange before ready to pressurize. 4. BWDG completed creation of the VLAN to isolate the IO network.

Figure 4.1 - Commissioning Daily Report for 11 May 2018 after strainer re-installation⁶⁵

- 4.10 On 13 May 2018 the Compressor was started up and AECOM was able to commence the 100-hour test.⁶⁶ The time between when the strainer was damaged (6 May 2018) and when the Compressor started up (13 May 2018), is the 8 days I have attributed to JH Kelly.

⁶⁵ [AEC00428325-AEC00428325, AEC00428325-AEC00428326 (sect K)] See Commissioning Plan of the Day for 11 May 2018 Section VII

⁶⁶ [AEC00467730-AEC00467733, AEC00467731 (sect K)] See Commissioning Plan of the Day for 13 May 2018 Section K

5 Analysis of Post Substantial Completion

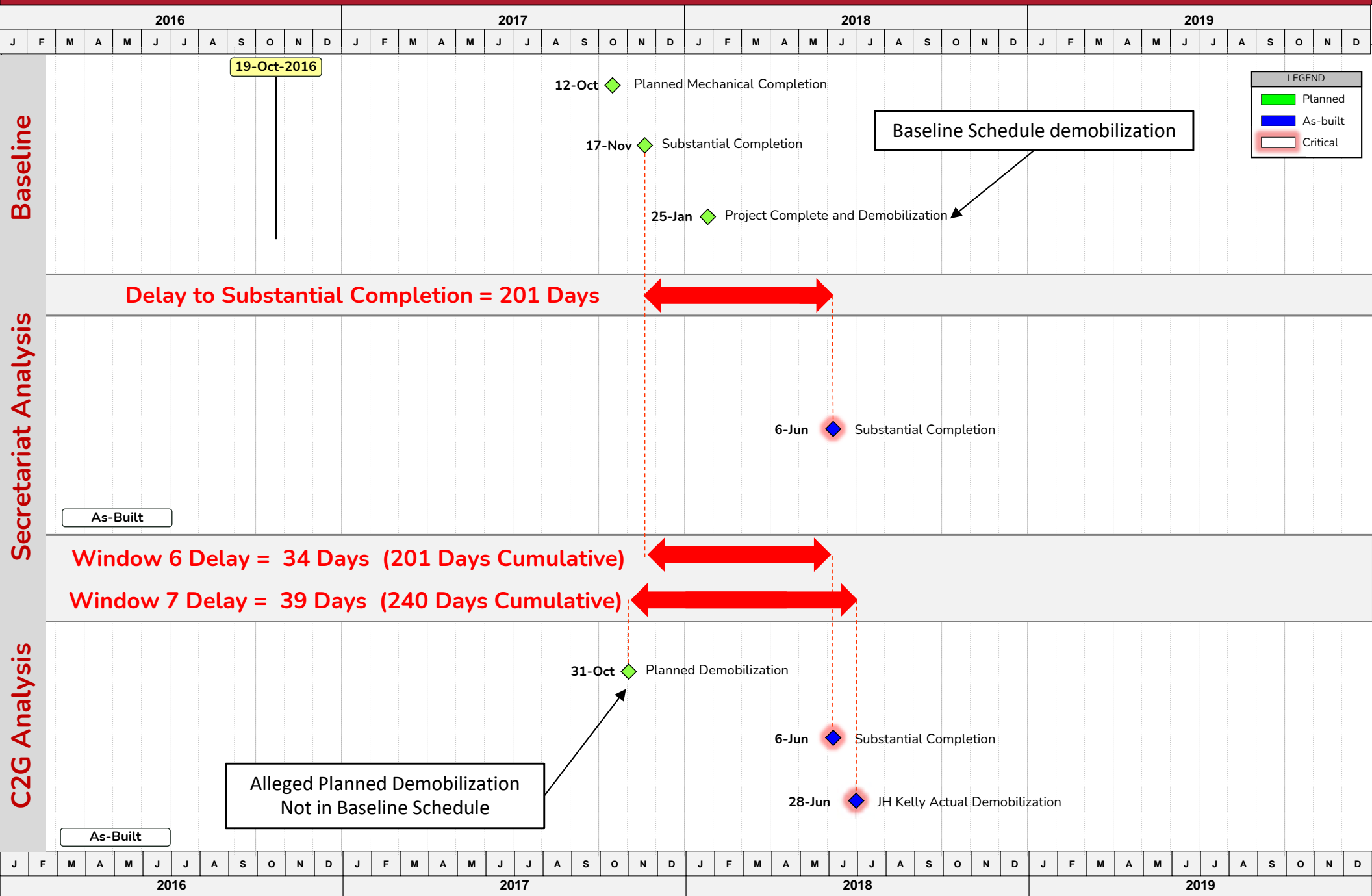
- 5.1 In Mr. Torres's Supplemental Report, he included Delay Measurement 7 for the time incurred post Substantial Completion (which he claims occurred on 28 June 2018).⁶⁷
- 5.2 For this time 22-day time period (28 June 2018 – 6 June 2018 = 22 days), Mr. Torres has concluded that 39 days of delay was incurred. This is more than a day for day delay (39 days in a 22-day time period) and is physically impossible.
- 5.3 The reason for this error, is that Mr. Torres has double counted delay. This is evident in the figure on the following page which shows that Mr. Torres' delay measurements in this and the previous time periods are overlapping (i.e., Mr. Torres shows demobilizing occurring before substantial completion).
- 5.4 Further, Mr. Torres alleges that JH Kelly planned its demobilization on 15 October 2017. There is no such planned demobilization in the Baseline Schedule. To support this planned demobilization date, Mr. Torres refers to the contract milestone schedule.⁶⁸ However, Mr. Torres' assessment of the planned demobilization date is incorrect for the following reasons:
- a) The Construction Milestone schedule included in the Contract actually had a Project Completion date and Demobilization milestone of 1 December 2017.⁶⁹
 - b) The Baseline schedule had a planned Project Completion date constrained to 25 January 2018.⁷⁰

⁶⁷ See Expert report issued by Mr. Torres of C2G dated 18 October 2021 Page 29 of 38

⁶⁸ See Expert report issued by Mr. Torres of C2G dated 18 October 2021 Page 4 of 38

⁶⁹ [AEC01036572] JH Kelly Subcontract page 93

⁷⁰ [JHK_BURNEY_00373392-JHK_BURNEY_00373402] Baseline Schedule Activity ID BCS.600.150 "Project Complete and Demobilization"



6 Observations and Concerns with Dr. Ibbs' Equitable Adjustment Analysis

6.1 I was specifically instructed to review pages 26 to 40 of Dr. Ibb's Equitable Adjustment Analysis. In these pages Dr. Ibbs makes a number of statements regarding AECOM's scheduling practices on the Project including:

- a) AECOM failed to provide detailed and stable schedules. That impacted JH Kelly's ability to efficiently plan and execute its work, impacting its productivity and costs;⁷¹
- b) AECOM only provided JH Kelly pdf's of the schedule and, as a result, JH Kelly could not *"investigate this schedule and understand any problems fully"*;⁷² and
- c) AECOM's schedules were "unstable" which led to JH Kelly not being able to effectively plan its work.⁷³

AECOM failed to provide detailed and stable schedules. That impacted JH Kelly's ability to efficiently plan and execute its work, impacting its productivity and costs.

6.2 I first note that JH Kelly's Subcontract with AECOM included their own scheduling responsibilities, namely that JH Kelly was to participate and cooperate in the development of schedules and provide information regarding times and sequence of operations (as can be seen below).

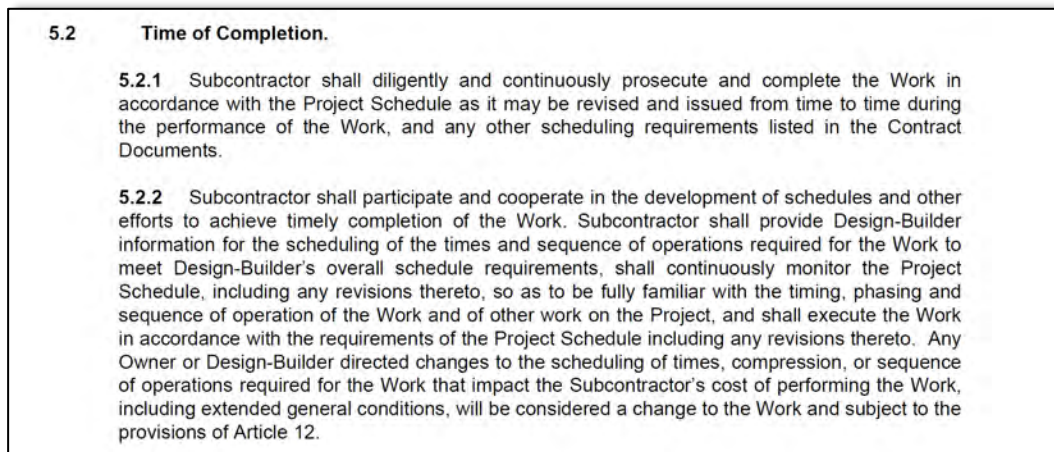


Figure 6.1 – Excerpts from JH Kelly Subcontract⁷⁴

⁷¹ See Expert report issued by Dr. Ibbs dated 18 October 2021 Paragraph 66

⁷² See Expert report issued by Dr. Ibbs dated 18 October 2021 Paragraph 51

⁷³ See Expert report issued by Dr. Ibbs dated 18 October 2021 Paragraph 70

⁷⁴ [AEC01036572] JH Kelly Subcontract Section 5

- 6.3 I further note that, as seen below, JH Kelly contemporaneously agreed to provide AECOM with a construction schedule by 16 September 2016. This commitment was included at the time of JH Kelly's Subcontract (as shown below).⁷⁵

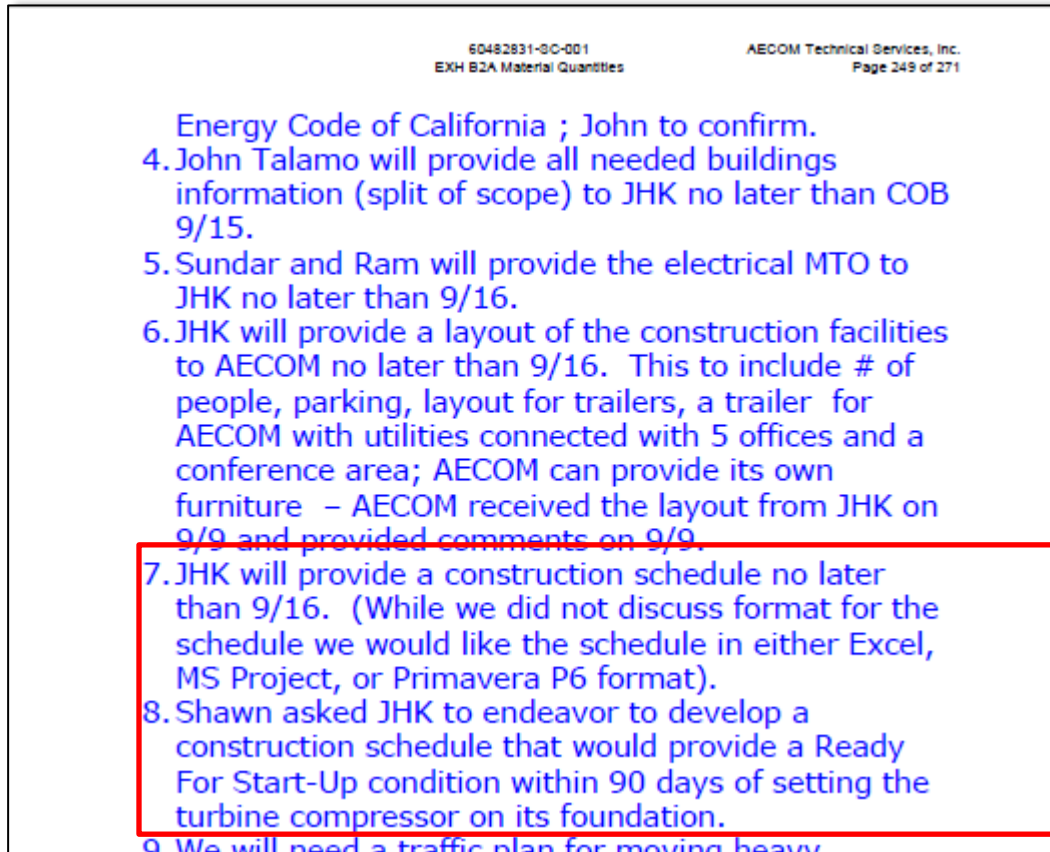


Figure 6.2 - Excerpt from JH Kelly Subcontract⁷⁶

- 6.4 Given the above, if JH Kelly was providing the scheduling information as required, then they should have been able to plan and execute its work accordingly. Further, it would have been at least partly the responsibility of JH Kelly to ensure that the schedules were detailed and stable.

AECOM only provided JH Kelly pdf's of the schedule and, as a result, JH Kelly could not "investigate this schedule and understand any problems fully"

- 6.5 First, no where in the Subcontract can I find that AECOM was obligated to provide JH Kelly native schedule files.
- 6.6 Second, JH Kelly, as required by the Subcontract, actually provided AECOM with a native construction schedule. This can be seen in the email excerpted below.

⁷⁵ [AEC01036572] JH Kelly Subcontract page 2210

⁷⁶ [AEC01036572] JH Kelly Subcontract page 2210

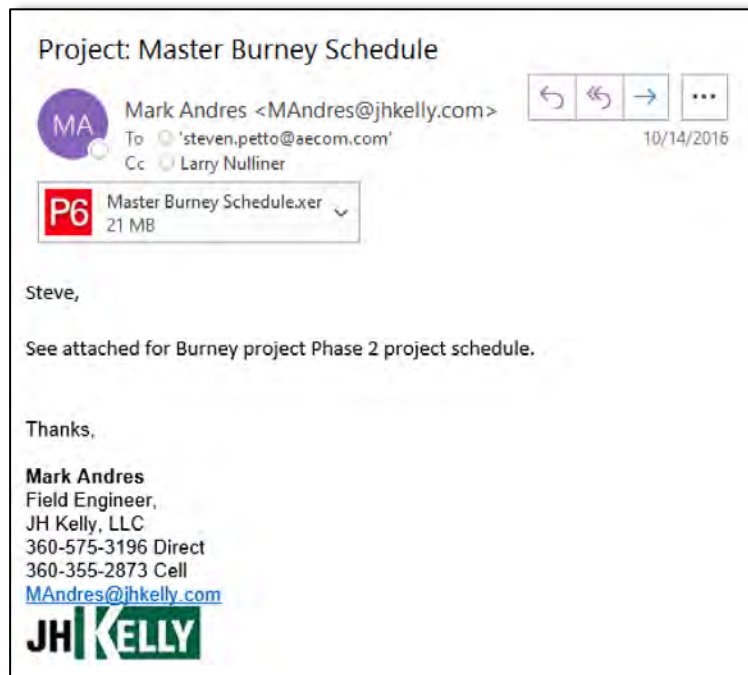


Figure 6.3 - JH Kelly submission of Baseline Schedule⁷⁷

- 6.7 The above was during the preparation of the baseline schedule and as can be seen, JH Kelly actually provided what they called the “Master Burney Schedule”. Given that JH Kelly created the primavera file for their construction scope of work, they should have been able *“to investigate this schedule and understand any problems fully”*.

AECOM’s schedules were “unstable” which led to JH Kelly not being able to effectively plan its work.

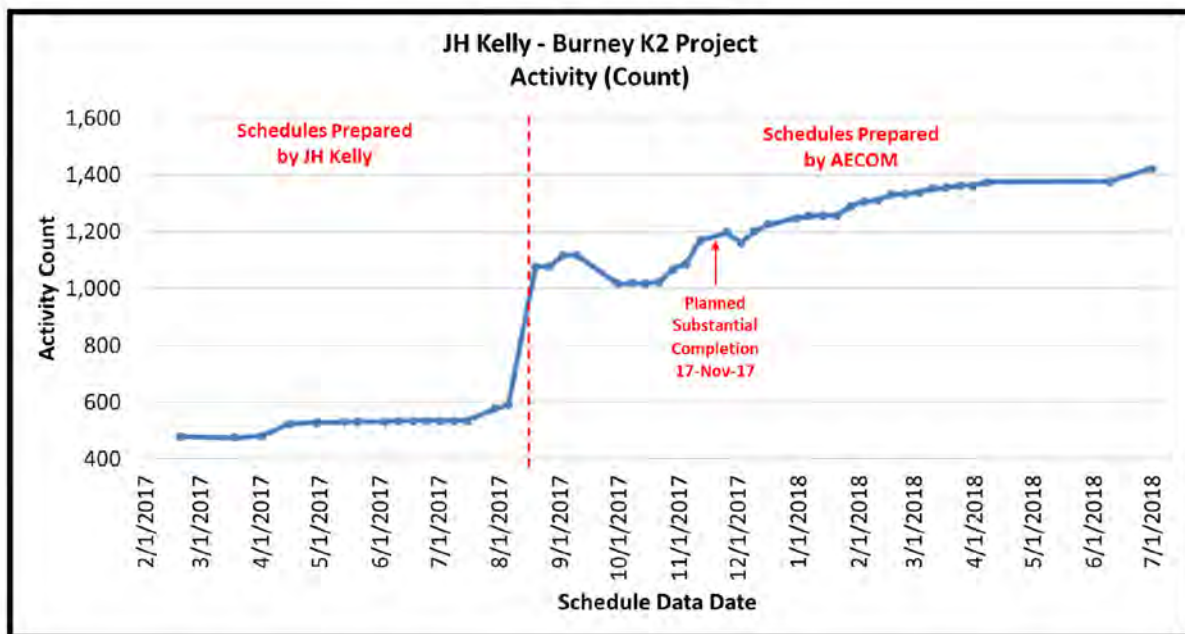
- 6.8 Based on my review of the baseline construction schedule that JH Kelly provided, it is evident that:
- a) The XER file contained JH Kelly’s construction activities and milestones (a total of 227 activities);
 - b) The XER file contained just 77 relationships between the 227 activities;
 - c) The XER file was missing predecessor logic for 149 activities or milestones;
 - d) The XER file was missing successor logic for 153 activities or milestones;

⁷⁷ [JHK_BURNEY_00364770-JHK_BURNEY_00364771] Master Burney Schedule Email from JH Kelly dated 14 October 2016

- e) The XER file had 4 constraints (Excavation for Aux Building Generator Pad starting 8-Mar-17, Set Building Columns in Hazmat Building starting 26-May-17, Set Air Compressor in Aux Building starting on 1-Jun-17, and Set Generator in Aux Building starting 1-Jun-17) ;
- f) The XER file was not resource loaded; and
- g) The XER file scheduled work on a “Standard” calendar which contained 5-day work weeks and no holidays.
- 6.9 While Dr. Ibbs did not provide his definition of a ‘stable’ schedule, from the above, it does seem to me that the schedule JH Kelly provided to AECOM did not adhere to best scheduling practices. Therefore, Dr. Ibbs criticisms of the Master Schedule are in fact a critique of JH Kelly’s own schedules they sent to AECOM. Consequently, if JH Kelly’s *“unstable”* schedules led to a *“disorganized execution of the work”*, then JH Kelly would have to take some responsibility in that (which I understand they do not).
- 6.10 It has also been alleged by Dr. Ibbs that the schedule was not sufficiently detailed until August 2017 as shown below:
- “Even if AECOM had created and provided JH Kelly an acceptable, high-level Master Schedule around October 2016, it failed to detail such a schedule and update it for ten additional months until the BSC 082017 6-1 schedule was finally produced.”⁷⁸***
- 6.11 The schedule “BSC 082017 6-1” referenced by Dr. Ibbs above is a schedule with a data date of 20 August 2017.⁷⁹ This schedule was the first to contain detailed activities for the underground electrical duct banks. While it was not the first schedule to be resource loaded by JH Kelly, it was the first to include electrical resource assignments.
- 6.12 There were in fact schedule updates prior to August 2017. It is my understanding, that the parties waited until PG&E had finished making its preferential changes to the electrical design (in May 2017) before incorporating these changes into the schedule. This aligned with Figure 2 in Dr. Ibbs’ report (which I have replicated below).

⁷⁸ See Expert report issued by Dr. Ibbs dated 18 October 2021 Paragraph 57

⁷⁹ See Expert report issued by Dr. Ibbs dated 18 October 2021 Exhibit 40, File “BCS 090317 6-10s VN_Clean.xer”

Figure 6.4 - Dr. Ibbs Figure 2⁸⁰

6.13 In regard to this chart, Dr. Ibbs states that:

“The majority of the added activities were added by JH Kelly to model the numerous changes not tracked by AECOM. This is a strong indication of a schedule that was neither mature nor stable.”⁸¹

6.14 However, as JH Kelly was responsible for providing scheduling updates to the construction scope of work, it makes total sense that the majority of the activities would be added by JH Kelly. Further, any deficiencies in the construction activities within the schedule would also be JH Kelly’s responsibility.

6.15 As can be seen from the above, the majority of the changes to the schedule were added in August 2017.

6.16 To that end, a review of the 20 August 2017 construction schedule (when the majority of the changes to the schedule were added as shown in the chart above) shows that:

- a) The XER file contained just 1764 relationships between the 1058 activities;
- b) The XER file was missing successor logic for 172 activities or milestones (including logical links between JH Kelly procured items and installations); and

⁸⁰ See Expert report issued by Dr. Ibbs dated 18 October 2021 Figure 2

⁸¹ See Expert report issued by Dr. Ibbs dated 18 October 2021 Paragraph 66

c) The XER file had 11 constraints.⁸²

6.17 In my opinion, the schedule, which was prepared by JH Kelly, still did not adhere to best scheduling practices.

⁸² See Expert report issued by Dr. Ibbs dated 18 October 2021 Exhibit 40, "BCS 082017 6-10s JHK_Clean.xer"

EXHIBIT 7

Exhibit 1

EXPERT REBUTTAL REPORT FOR JH KELLY, LLC

BY

JAMES MELVIN TORRES

In Re:

PG&E Corporation

v.

AECOM Technical Services, Inc.

PREPARED AT THE REQUEST OF:
STOEL RIVES LLP

COUNSEL FOR:
JH KELLY, LLC

PROJECT:
PG&E'S BURNEY K-2 REPLACEMENT PROJECT
BURNEY, CALIFORNIA

NOVEMBER 16, 2021

**PG&E's Burney Gas Transmission Project
Expert Rebuttal Report of James Melvin Torres**

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I. Introduction and Overview

A. Scope of Analysis

I was retained by Stoel Rives LLP, counsel for JH Kelly, LLC (“Kelly”) – a subcontractor of AECOM Technical Services, Inc. (“AECOM”) – to review and evaluate the schedule and delay opinions affirmatively provided on October 18, 2021 in regard to the PG&E Corporation (“PG&E”) versus AECOM matter, for the PG&E Burney K-2 Replacement Project (“Project”), located in Burney, California.

Specifically, the only other schedule or delay analysis in this matter was provided on behalf of AECOM by Mr. Ted Scott of Secretariat. Therefore, this rebuttal report (“Rebuttal Report”) addresses the numerous schedule impacts alleged against Kelly in Mr. Scott’s *Report on Delay*, dated October 18, 2021 (“Secretariat Report”).¹

As indicated in my affirmative *Expert Report for JH Kelly, LLC*, dated October 18, 2021 (“Affirmative Report”), my involvement on this Project began while I was a Principal of C2G International, LLC (“C2G”). Currently, I am an independent consultant subcontracted to C2G. For purposes of this Rebuttal Report and for simplicity and consistency with my Affirmative Report, I will still refer to my analysis using C2G.

B. List of Documents Considered

C2G considered numerous documents in its evaluation and analysis for this Rebuttal Report. These documents were identified in C2G’s Affirmative Report.² C2G also relied upon additional discussions regarding Project performance with Mr. Tom Lee, Kelly’s Project Scheduler and Controller during the Project.

C. Statement of Rebuttal Opinions

As supported in the analysis sections below, my rebuttal opinions include the following:

1. The Secretariat Report analyzes the Project in three distinct phases with an as-planned versus as-built schedule analysis method. However, Secretariat made several errors to the methodology process, quantification, and allocation of delays. In fact, for 55% of the alleged Kelly delays, Secretariat stated it was unable to determine the cause of the delay. As a result, Secretariat’s

¹ C2G understands that PG&E and AECOM have agreed on a settlement regarding the additional time and costs incurred between the parties. However, C2G reserves its right to amend this analysis based on any new or pending information.

² See Exhibit I.2 to C2G’s Affirmative Report for the list of documents considered.

analysis is inaccurate, incomplete, and overstated. Therefore, Secretariat's schedule analysis is flawed and unreliable.

2. Even assuming, for argument's sake, the Secretariat Report's as-built critical path analysis was correct, it fails to adequately support its allocation of delay towards Kelly. The Secretariat Report also fails to consider numerous contemporaneous Project documents that are critical to determining the party responsible for delay. Recognition of these documents and correctly correlating Secretariat's critical path across all Project phases results in the conclusion that Kelly is not responsible for any of the critical path delay alleged in the Secretariat Report.

D. Reservation of Rights

As of the date of this Report, several items are still pending or forthcoming. This includes, but is not limited to, percipient and expert discovery and depositions. C2G reserves its right to amend this Rebuttal Report and its underlying analyses for any pending, new, or forthcoming information as appropriate.

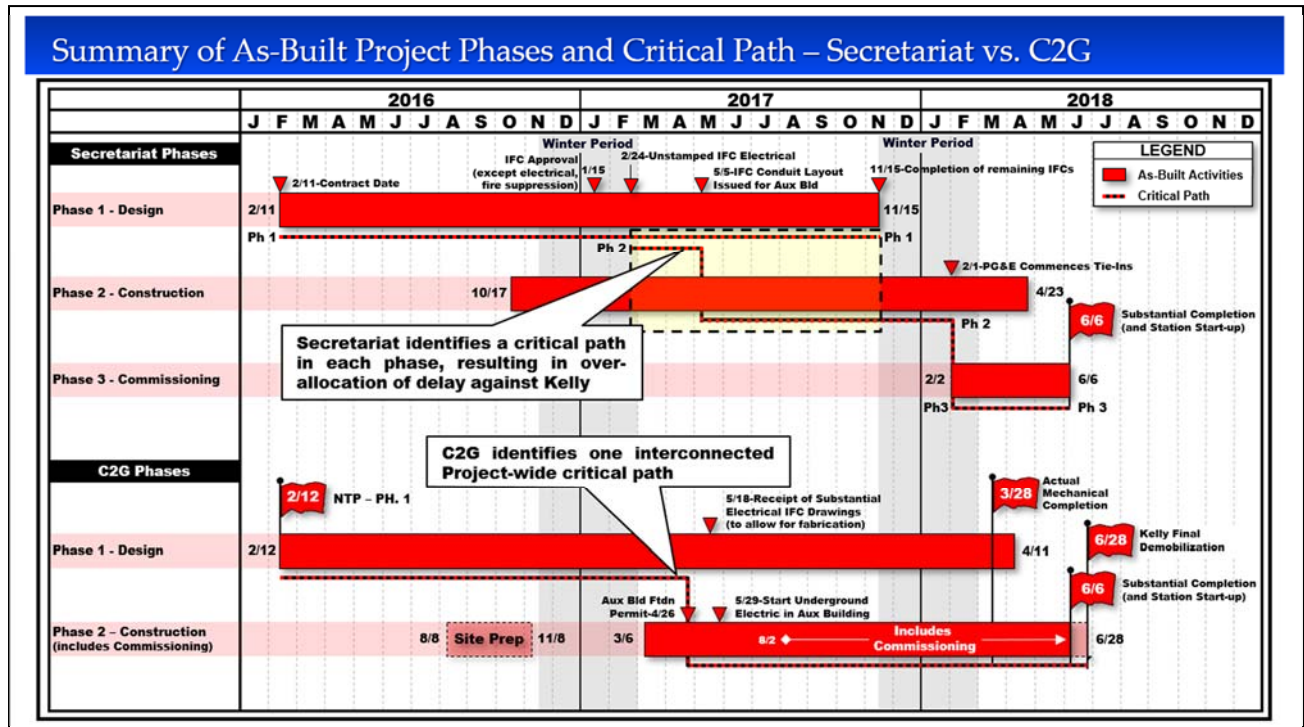
II. Supporting Analysis

A. Rebuttal Opinion 1

The Secretariat Report analyzes the Project in three distinct phases with an as-planned versus as-built schedule analysis method. However, Secretariat made several errors to the methodology process, quantification, and allocation of delays. In fact, for 55% of the alleged Kelly delays, Secretariat stated it was unable to determine the cause of the delay. As a result, the resulting analysis is inaccurate, incomplete, and overstated. Therefore, the Secretariat Report's schedule analysis is flawed and unreliable.

Both Secretariat and C2G utilized an As-Planned vs. As-Built schedule analysis method to determine an as-built critical path and delay quantification. Then, each party used its respective as-built critical paths in determining the causes and responsibility of delay throughout the Project. At this macro-level, the two reports are generally similar in methodology; however, deviations exist once the analysis is executed – starting with the overall Project phasing (“Phase” or “Phasing”).

More specifically, as illustrated in the graphic below, C2G’s Affirmative Report uses the two contractual Phases (Phase 1: Design and Phase 2: Construction, inclusive of commissioning) and determines one interconnected Project-wide critical path. The Secretariat Report includes the same first two Phases but also separates commissioning as a third Phase and identifies a critical path within each Phase. The graphic below illustrates the comparison between C2G and Secretariat’s methodologies.

Graphic II.A.1 – Summary of As-Built Project Phases and Critical Path – Secretariat vs. C2G³

This difference in Phasing approaches leads to significant flaws in the Secretariat Report. At a summary-level, the Secretariat Report contains the following five flaws:

- 1) Secretariat duplicated delay against Kelly,
- 2) Secretariat has unexplained gaps of time in its critical path,
- 3) Secretariat's analysis inaccurately portrays Project-wide mitigation as Kelly delay,
- 4) Secretariat's analysis is incomplete given that it was not able to determine the cause of delay for 58 of the total 105 days of delay allocated to Kelly, and
- 5) Secretariat's critical path shifts between Phases and activities lack logic or proper substantiation.

³ See Exhibit 1 for a larger version of this graphic.

(1) Secretariat Duplicated Delay Against Kelly

Secretariat's Phase 1 and Phase 2 have duplicative claims for delay which it asserts against Kelly. The Secretariat Report summary delay table shows it is asserting 105 days total against Kelly, summarized by the following amounts by each Phase.

Table 1 – Secretariat Summary Table for Phases 1, 2, and 3 Delay Allocation (Secretariat Report, Page 14)

Phase	PG&E	JHK	AECOM	AECOM Vendors	Exc. Non-Comp	Cumulative Delay
Phase 1	338	35	0	0	0	373
Phase 2	77	61	0	0	12	150
Phase 3	10	9	8	20	4	51
Total	425	105	8	32	4	574

The duplication exists between Secretariat's Phase 1, Window II delay allocation of 35 days, and its Phase 2, Window I delay allocation of 32 days. The following are the Phase 1 and Phase 2 delay allocation tables from Secretariat.

Table 2 – Secretariat Phase 1 Delay Allocation Summary (Secretariat Report, page 7).

Phase 1 Window	Delay Description	PG&E	JHK	AECOM	Exc. Non-Comp	Cumulative Delay
I	Changes to PG&E's Bid Design	69	0	0	0	69
II	PG&E's Preferential Change and the conflict between the duct bank and the existing utility	269	35	0	0	373
Total		338	35	0	0	

Table 3 – Secretariat Phase 2 Delay Allocation Summary (Secretariat Report, page 101).

Window	Delay Description	PG&E	JHK	AECOM	Exc. Non-Comp	Cumulative Delay
I	PG&E's Preferential Changes to the Electrical Design and the conflict between the duct bank and the existing utility	32	32	0	0	64
II	Boulder Excavation	7	0	0	0	71
II	Additional Scope	19	0	0	0	90
II	Lack of Resources	0	15	0	0	105
III	Added Scope Duct Banks	19	0	0	0	124
III	4" Gas Line Damage	0	6	0	0	130
IV	Agreed Project Shut Down	0	0	0	12	142
IV	Slower than planned progress Pulling Wire and Performing Terminations	0	8	0	0	150
Total		77	61	0	12	150

In its Phase 1 analysis, the Secretariat Report identifies 373 days of total delay incurred during the as-built period from February 11, 2016 (date of the Contract) through November 15, 2017 (completion of remaining IFC drawings). Specifically, in its Phase 1, Window II, Secretariat found Kelly responsible for 35 days of delay from February 24, 2017 through May 5, 2017 (or half of the 70-day duration from the issuance of unstamped Electrical drawings to the issuance of the Auxiliary Building's IFC conduit layout)⁴. Even though Kelly is not responsible for these 35 days – a point that will be discussed later in this Rebuttal Report and is further supported by Lane Coburn & Associates LLC's *Electrical Design Report*, dated November 16, 2021 ("Electrical Design Report") – the first problem lies with Secretariat's failure to correlate this Phase 1 allocation with its next allocation in Phase 2.

In Secretariat's next window (Phase 2, Window I), it allocated 32 days of delay to Kelly for the same exact issue, with a slightly different – but overlapping – time period. In its analysis of the critical path in Phase 2, Secretariat found that the Project is 64 days behind schedule as of June 1, 2017.⁵ Based on Secretariat's as-built critical path, these 64 days of delay must have been incurred between February 24, 2017 (start of Secretariat's Phase 2 as-built critical path) and June 1, 2017 (end of Secretariat's window).⁶ Secretariat allocated half of this delay (32 days) to Kelly for a second time.

Again, even if Kelly were responsible for this delay – which it is not – the delay overlaps with the same delay in Secretariat's prior Window (Phase 1, Window II). The graphic below illustrates the overlap

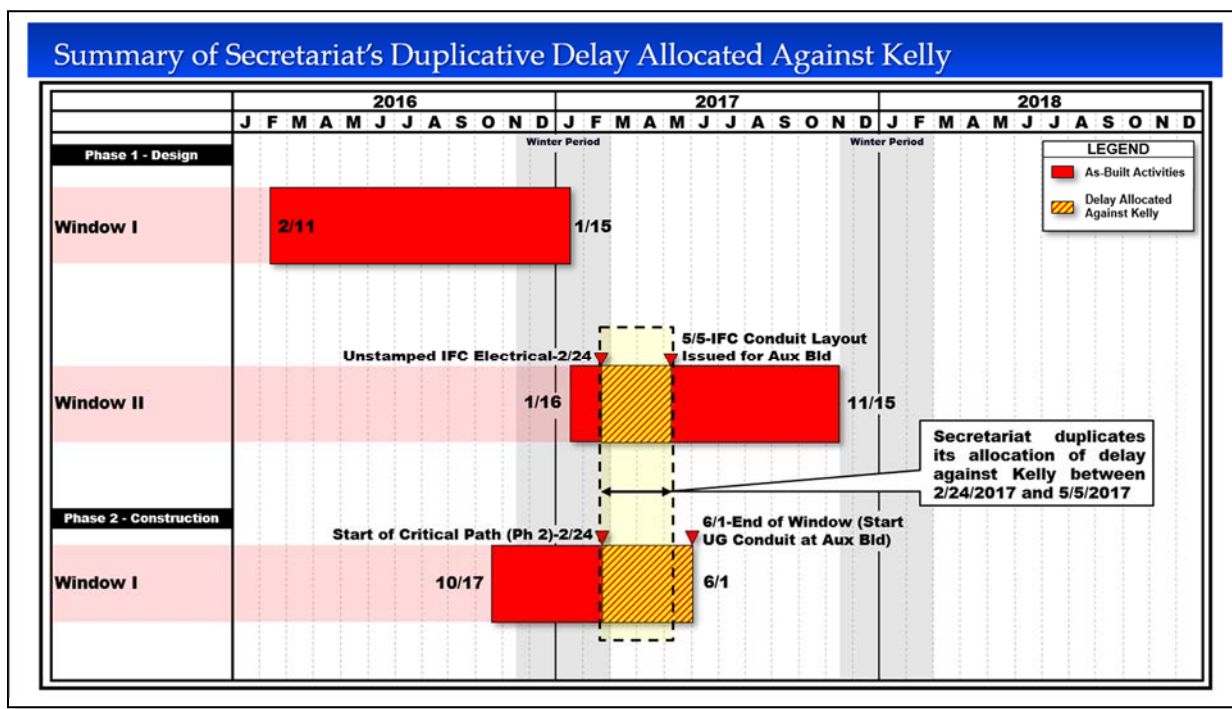
⁴ See the Secretariat Report, paragraph 5.63, page 55. Secretariat allocated the other half (35 days) to PG&E.

⁵ The 64-day delay is determined by measuring when underground conduit for the Auxiliary Building should have begun based on the Baseline Schedule (March 29, 2017) and comparing it to when it actually began (June 1, 2017). This measurement (June 1, 2017 – March 29, 2017 = 64 days) is not the period of performance when the 64 days were lost. The delay must occur on the critical path. Since Secretariat's critical path in this phase begins on February 24, 2017, C2G assumes this is the earliest date delay could be incurred in this window.

⁶ See the Secretariat Report, Figure 6-2, page 65. Since critical path delay must incur on the critical path, and the critical path in this portion of Secretariat's analysis begins on February 24, 2017, the delay must not have been incurred prior to that date.

and the duplicative nature of Secretariat's allocation, which is a direct result of Secretariat's failure to correlate a Project-wide critical path.

Graphic II.A.2 – Overview of Secretariat's Duplicative Delay Allocated Against Kelly⁷



Further, C2G cannot determine exactly how much overlap exists since it is unclear exactly when the delay is actually being incurred in Secretariat's Phase 2, Window I allocation. It is clear that the delay was not incurred prior to the critical path initiating in Phase 2 (on February 24, 2017), but if the impact was completed on May 5, 2017 (according to Secretariat's Phase 1, Window II), it is unclear what was delaying the Project through June 1, 2017.

(2) Secretariat Has Unexplained Gaps of Time in Its Critical Path

An as-built critical path is the longest continuous chain of inter-related activities controlling Project completion.⁸ Secretariat's as-built critical path shows a 26-day gap between May 6, 2017 and May 31, 2017.⁹ The existence of this 26-day gap supports the fact that Secretariat's analysis is not continuous or complete – and thus is flawed and unreliable.

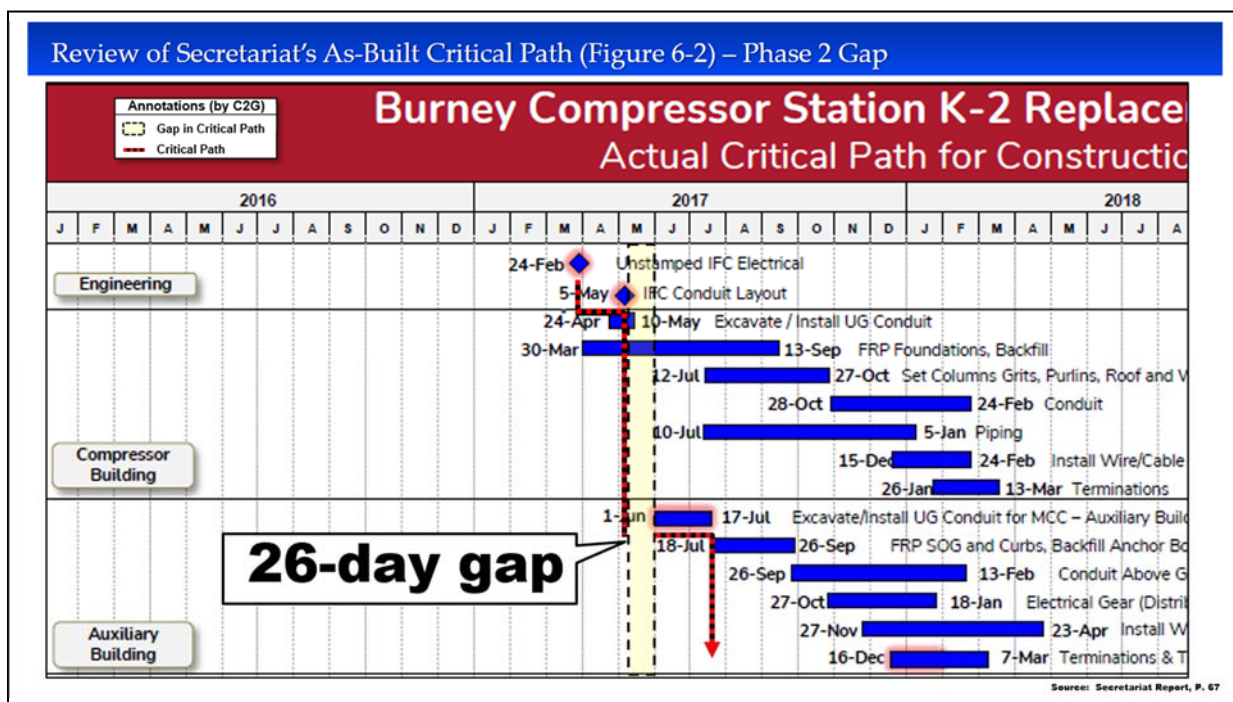
⁷ See Exhibit 2 for a larger version of this graphic.

⁸ Secretariat Report defines critical path in paragraph 4.9, per SCL Delay Protocol. AACE International, Cost Engineering Terminology, 10S-90, page 34, "Critical Path – The longest continuous chain of activities (may be more than one path) which establishes the minimum overall project duration. A slippage or delay in completion of any activity by one time period will extend final completion correspondingly. The critical path by definition has no "float".

⁹ See the Secretariat Report, Figure 6-2, page 65. The "Actual Critical Path for Construction" fails to indicate any activity or milestone on the critical path after May 5, 2017 and before June 1, 2017.

In the graphic below, C2G has enlarged Secretariat's Figure 6-2 which highlighted the critical path activities with a pink shadow. By drawing a line from the Phase 1 engineering milestone of May 5, 2017 Secretariat highlighted pink, to the Phase 2 start of Auxiliary Building on June 1, 2017, the 26 day unexplained gap is visible. C2G believes, in large part, that this disconnect in the critical path, illustrated in the graphic below, can be explained by another flaw in Secretariat's analysis, as explained in the following section.

Graphic II.A.3 – Review of Secretariat's As-Built Critical Path (Figure 6-2) – Phase 2 Gap¹⁰



(3) Secretariat's Analysis Inaccurately Portrays Project-Wide Mitigation as Kelly Delay

The Secretariat Report's failure to correlate the critical path between Phases also caused Secretariat to misidentify Kelly's mitigation as delay. One benefit of the As-Planned vs. As-Built methodology is its mathematical simplicity. Regardless of the number of windows or periods analyzed, the difference in cumulative delay from a prior period to the next period discretely identifies the delay (or mitigation) that the Project incurred in that specific time period. Consider the following table as a simple example using three measurements with a theoretical as-built critical path through design, construction, and close-out:

¹⁰ See Exhibit 3 for a larger version of this graphic.

Table 4 – Example of As-Planned vs. As-Built Analysis.¹¹

Period	Period Description	Planned Date	Actual Date	Period Delay	Cumulative Delay
A	IFC Drawing Release	1-Jan	31-Jan	30	30
B	Substantial Completion	1-Jul	15-Aug	15	45
C	Final Completion	1-Sep	1-Oct	-15	30
Total				30	

There are several important aspects to an As-Planned vs. As-Built schedule analysis method exemplified above, which include the following:

- An as-built critical path must be determined before deciding on periods and points of measurement. Once determined, periods should be selected based on the most relevant points of the as-built critical path. These periods are organized by actual dates. For example, the actual performance of Period B occurs from January 31st (end of Period A) through August 15th (end of Period B).
- Period A measures to the completion of a project's design, represented by release of IFC drawings. This example project's design was planned to be complete on January 1st but was not actually complete until January 31st. Measuring the actual completion against the planned completion indicates there were 30 days of cumulative delay on the Project at this point in time (January 31st – January 1st = 30 days). Because this is the first period, the same amount of delay (30 days) was also incurred in this period.
- Period B measures to the completion of a project's construction, represented by substantial completion. This example project's substantial completion was planned to be achieved on July 1st but was actually achieved on August 15th. Measuring the actual completion against the planned completion indicates there were 45 days of cumulative delay at the end of this period (August 15th – July 1st = 45 days). Thus, this period incurred an additional *15 days of delay on the critical path* (45 days in Period B, less 30 days in Period A = 15 days incurred from Period A to Period B).
- Period C measures to the completion of close-out activities, represented by final completion. This example project's final completion was planned to be achieved on September 1st but was actually achieved on October 1st. Measuring the actual completion against the planned completion indicates there were 30 days of cumulative delay at the end of this period (October 1st – September 1st = 30 days). Thus, this period incurred *15 days of mitigation* (30 days in Period C, less 45 days in Period B = -15 days incurred from Period B to Period C. Negative delay indicates mitigation of the delay).

¹¹ Yellow indicates delay in a period; green indicates mitigation in a period.

This theoretical scenario exemplifies the mathematical simplicity of this type of analysis. No matter how many periods or Windows are analyzed, comparing the cumulative delay between your current period and the prior period will always indicate the performance that needs to be analyzed in the period.

The analysis performed in the Secretariat Report failed to follow the simple methodology explained above. Rather, Secretariat's analysis accounted for delay in Phase 1 independent from the critical path activities that it attempts to show between Phase 1 and Phase 2, and thus contrary to its own "Actual Critical Path for Construction" (Figure 6-2). These errors are explained further below.

Secretariat's methodology error exists between its delay allocation of Phase 1, Window II and Phase 2, Window I. C2G has combined Secretariat's Phase 1 and 2 delay allocation tables in the graphic below to highlight the error in methodology.

Graphic II.A.4 – Summary of Secretariat's Delay Allocation Tables for Phase 1 and 2

Phase 1 Window	Delay Description	PG&E	JHK	AECOM	Exc. Non-Comp	Cumulative Delay
I	Changes to PG&E's Bid Design	69	0	0	0	69
II	PG&E's Preferential Change and the conflict between the duct bank and the existing utility	269	35	0	0	373
Total		338	35	0	0	
Phase 2 Window	Delay Description	PG&E	JHK	AECOM	Exc. Non-Comp	Cumulative Delay
I	PG&E's Preferential Changes to the Electrical Design and the conflict between the duct bank and the existing utility	32	32	0	0	64

Secretariat Methodology Error Between Phases

C2G's observations from its review of the Secretariat analysis include the following:

- Phase 1 Delay Allocation Error** - Secretariat's as-built critical path was not directly correlated between Phases in the Secretariat Report or its own delay allocation tables. Therefore, Secretariat's delay allocation is representing erroneous delay allocations compared to Secretariat's own as-built critical path analysis. Notably, Phase 1, Window II is only relevant to the Phase 1 completion of engineering design through November 15, 2017, and thus Secretariat allocated 304 days of additional delay in Window II (for a cumulative total of 373 days in Phase I). However, Secretariat's as-built critical path for the Project does not include engineering on the critical path through November 15, 2017. Further, Secretariat's Phase 1 delay allocation does not include any delay measurements that align with its Project as-built critical path as shown in Secretariat's Project critical path chart¹². Thus, Secretariat's use of its Phase 1, Window II (in grey below) should be excluded from the cumulative delay column calculation as it only relates to the completion of Phase 1 engineering design (scope that Kelly is not responsible for), and not to Secretariat's own as-built critical path as represented in its

¹² See Secretariat Report, Figure 6-2, page 65 – "Actual Critical Path for Construction".

Figure 6-2. To correct for this error, C2G added a replacement row for Secretariat's Phase 1, Window II that correctly correlates Secretariat's as-built critical path transition from Phase 1 to Phase 2 on May 5, 2017, as Secretariat represented in its as-built critical path chart (see the green Window II row below). By correctly revising Secretariat's delay measurements to align with its Figure 6-2, Window II now measures the delay to the engineering status as of May 5, 2017 per Secretariat, showing that the Project was 179 days behind schedule (May 5, 2017 – November 7, 2016 = 179 days cumulative delay (110 additional days)).¹³

Table 5 – C2G's Revised Summary of Secretariat's Delay Allocation for Phase 1

Phase	Window	Planned Date	Actual Date	Window Delay	Cumulative Delay	C2G Adjustment Notes
Phase 1	I	11/7/2016	1/15/2017	69	69	
	II	11/7/2016	11/15/2017	304	373	Secretariat's delay allocation
	II	11/7/2016	5/5/2017	110	179	C2G's revised Window - Per Secretariat Critical Path

- Phase 2 Recognition of Delay Mitigation** - When Secretariat's critical path between Phases 1 and 2 is correctly correlated to align with its delay measurements and delay allocations, Secretariat's Phase 2, Window I still shows 64 days of cumulative delay. However, as shown in the window delay column in the table below, this Window I actually experienced 115 days of mitigation from the prior period (179 days as of Revised Phase 1, Window II – 64 days as of Phase 2, Window I = -115 days mitigated). C2G's update to the Secretariat Phase 2, Window I is shown in the table below and further explained below.

Table 6 – C2G's Revised Summary of Secretariat's Delay Allocation for Phase 1¹⁴

Phase	Window	Planned Date	Actual Date	Window Delay	Cumulative Delay	C2G Adjustment Notes
Phase 1	I	11/7/2016	1/15/2017	69	69	
	II	11/7/2016	11/15/2017	304	373	Secretariat's delay allocation
	II	11/7/2016	5/5/2017	110	179	C2G's revised Window - Per Secretariat Critical Path
Phase 2	I	3/29/2017	6/1/2017	-115	64	Comparing Ph 1, Window II to this Window results in -115 days
	II	4/3/2017	7/17/2017	41	105	
	III	8/8/2017	12/16/2017	25	130	
	IV	9/5/2017	2/2/2018	20	150	

¹³ After correcting Secretariat's Phase 1, Window II, the cumulative delay grew from 69 days in Window I to 179 days in Window II. Thus, Window II would need to explain and allocate the additional 110 days of delay (179 days – 69 days = 110 days)

¹⁴ For clarity, this table excludes Phase 3. The Secretariat Report also fails to correlate a critical path from Phase 2 to Phase 3. However, the additional 51 days of delay in Secretariat's Phase 3, combined with the 150 cumulative days of delay at the end of its Phase 2, matches C2G's analysis as of June 6, 2018 (201 days of delay as of Substantial Completion).

- C2G reviewed Phase 2, Window I and determined that the mitigation was achieved, in large part, through the earlier-than-planned release of underground conduit, allowing Kelly to start the underground conduit at the Auxiliary Building sooner than the Baseline Schedule sequence planned.
- This error in the Secretariat Report is due to Secretariat not properly reconciling its as-built critical path and the associated transitions between its Phase 1 and Phase 2 analyses.

Consequently, the correction of this one major failure in Secretariat's Report (the recognition of 115 days of mitigation) would eliminate the 32 days of delay allocated against Kelly in Phase 2, Window I. Assuming that no other errors exist throughout Secretariat's analysis, 73 days of total delay would remain allocated against Kelly in the other windows (105 days of total delay allocated against Kelly – 32 days eliminated = 73 days remaining). These 73 days of delay would be completely offset by the 115 days of mitigation described herein.

(4) Secretariat's Analysis Is Incomplete Given That It Was Not Able to Determine the Cause of Delay For 58 of The Total 105 Days of Delay Allocated to Kelly

Secretariat's Report paragraph 4.11 states, "...my approach and overall analysis...allows for a conclusion on the actual cause(s) of delay...." Contrary to this statement, of the 105 total days of delay allocated against Kelly (in six Windows), three of the six Secretariat Windows include a total of 58 days (55% of the total Kelly alleged delay) that were based on its own admitted incomplete analysis – Secretariat stated it has "*not been able to determine*" delay causation, or the cause of the delay is "*unclear*". It is my opinion, based on the following numerous errors in this report, that for 55% (or the majority) of an analysis to be admitted as incomplete, then the entire analysis should be questioned as unreliable.

- Secretariat Phase 1, Window II (paragraph 5.63): When allocating 35 days against Kelly, Secretariat stated, "*Should it be found that JH Kelly was responsible for catching the conflict earlier than they did, then they would share accountability for the delay. For purposes of this report, I assumed this to be the case. However, based on the records that have been made available to me, I have not been able to determine exactly when the change to routing of the duct bank was made. I have therefore split the delay equally between PG&E and JH Kelly (i.e., 35 days to PG&E and 35 days to JH Kelly)...*" Despite the inability to make a determination, Secretariat applied a 50/50 split of responsibility between PG&E and Kelly.
- Secretariat Phase 2, Window II (paragraph 6.79): When allocating 15 days against Kelly, Secretariat stated, "*From the documents that are available to me, it is unclear what caused this delay.*" Paragraph 6.82 goes on to state for this Window's delay allocation, "*Based on all of the above, I have attributed this [15 day] delay to JH Kelly's slower than planned productivity.*" Despite the uncertainty as to the cause of the delay, Secretariat assigned 100% responsibility to Kelly.

- Secretariat Phase 2, Window IV (paragraph 6.114): When allocating 8 days of delay against Kelly, Secretariat stated, “*While it is possible that some of this additional time was due to PG&E’s preferential changes (i.e., added duct bank and conduit), I do not have the records available to me to determine how much, if any, time should be allocated to PG&E. Therefore, for purposes of this report, I have assumed all of the delay is due to JH Kelly as this was part of their scope to complete in a timely manner.*” Despite the uncertainty as to the cause of the delay, Secretariat assigned 100% responsibility to Kelly.

Based on the three Windows of delay allocation incompleteness described above, I do not believe Secretariat’s overall delay allocation is reliable.

(5) Secretariat’s Critical Path Shifts Between Phases and Activities Lack Logic or Proper Substantiation

C2G understands that the Secretariat Report identified critical paths for Phases 1, 2, and 3 in its Figure 6-2, as well as other more detailed schedule comparisons. As will be explained in greater detail throughout my responses, the critical path from Phase to Phase, and within the Phases appears to be subjectively and loosely tied, poorly substantiated, or inconsistent with construction sequencing.

Examples include:

- Phase 1 and Phase 2 Critical Path – As explained above in section II.A.(1), Phase 1 and Phase 2 critical paths are duplicated.
- Phase 2 26 day gap – As explained above in section II.A.(2), Figure 6-2 shows there is a 26 day gap between the second and third critical path activities from May 5, 2017 to June 1, 2017. Secretariat provided no substantiation for this break in the critical path.
- Phase 2 critical path shift from Auxiliary Building underground conduit to underground ductbanks – As will be explained in detail below, Figure 6-2 shows a shift in the critical path following Auxiliary Building on July 17, 2017, and the critical path resuming in the middle of an activity for underground ductbanks. C2G could not identify this activity in the schedule, and according to Kelly’s daily reports Secretariat missed a PG&E delay impeding the critical path at that time, which did not start for another 14 days.
 - Secretariat says its analysis can consider concurrency but failed to consider that its critical path was similar to C2G’s critical activities through the Auxiliary Building. Considering that Secretariat’s Figure 6-2 shows a continuous sequence of activities in the Auxiliary Building, it appears that there would at least be a concurrent path through the Auxiliary Building.
- Phase 2 critical path shifting from underground ductbanks to Auxiliary Building wire terminations and testing activities – Secretariat fails to substantiate when the wire pulling was

completed for its identified three critical ductbanks (a necessary construction sequence activity), and if those three ductbanks actually released the specified wire terminations and testing that it identified in its narrative.

- Phase 2 critical path shift to Phase 3 – Secretariat fails to explain the critical path logic of how the completion of 30% wire terminations in the Auxiliary Building (Secretariat’s last critical path activity in Phase 2) is a critical path predecessor activity releasing the start of commissioning in Phase 3. This logic fails to consider the large volume of remaining work in the Auxiliary Building, permanent power that was not available until February 27, 2018, and achieving Mechanical Completion on March 28, 2018.

B. Rebuttal Opinion 2

Even assuming, for argument’s sake, the Secretariat Report’s as-built critical path analysis was correct, it fails to adequately support its allocation of delay towards Kelly. The Secretariat Report also fails to consider numerous contemporaneous Project documents that are critical to determining the party responsible for delay. Recognition of these documents and correctly correlating Secretariat’s critical path across all Project phases results in the conclusion that Kelly is not responsible for any of the critical path delay alleged in the Secretariat Report.

Generally, C2G does not agree with the Secretariat Report’s allocation of delay in the numerous Windows and how the delay is allocated across the different parties. However, for purposes of this analysis, this Rebuttal Report addresses only the allocations of delay made against Kelly.

(1) Secretariat’s Phase 1, Window II (35 days allocated against Kelly)

Secretariat’s Phase 1, Window II allocates 35 days of delay against Kelly for its alleged failure to catch a design conflict earlier than Kelly actually caught the error. Notably, the Secretariat Report split this window’s total delay (70 days) between PG&E and Kelly but allocated no responsibility of the design error to the designer itself (AECOM). Even if Kelly was responsible for catching this error – which it is not, as detailed in the Electrical Design Report – the Secretariat Report fails to state how a duct bank re-route was responsible for 70 days of delay (split between PG&E and Kelly).

Secretariat’s allocation of delay to Kelly is also contradicted elsewhere within its own narrative. In its Phase 1 analysis, Secretariat states that the delays are caused by PG&E’s “*fundamental changes*” in the scope and design of the Project.¹⁵ Per paragraphs 5.47 to 5.48, Secretariat explains that during this alleged delay period of February 24, 2017 through May 5, 2017, it also had Mr. Malsen (PG&E’s

¹⁵ As one example, the Electrical Design Report discusses the significant impact of PG&E’s ambient temperature requirement.

Electrical Designer) stationed in the AECOM Oakland offices between March 2017 to May 2017 “to expedite the implementation of PG&E’s changes...” Secretariat’s list of PG&E preferences in paragraph 5.48 substantiate the extended design duration, in addition to numerous design changes ongoing at this time period as described with Secretariat’s own report.

Secretariat also fails to acknowledge a 208% increase in the number of conduits (173 additional conduits) during the same time period.¹⁶ Changes such as these – which AECOM attributes to PG&E’s preferential changes – more reasonably explain a 70-day delay to completion of electrical IFC layout drawings.

Even assuming Secretariat was correct, the dates used for its 70 day period appear overstated. The following identifies the chronology of events regarding the alleged ductbank re-route:

- February 2017¹⁷– Per Secretariat, Kelly notified AECOM regarding the conflict.
- April 12, 2017 – Goward (Lead Elect. Engr)/AECOM sent an email to PG&E with three redesign options.¹⁸
- April 17, 2017 – PG&E selects the option to completely redesign and reroute the ductbank.¹⁹
- May 5, 2017 – AECOM issued the IFC drawings for the conduit layout (Per Secretariat’s paragraph 5.54).

Accordingly, any alleged Secretariat delay allocated to the gas line and ductbank conflict appears to be limited to a maximum of one month – early/mid-April 2017 to May 5, 2017. The time period from February to April appears to be unsupported – AECOM appears to have not addressed the conflict during this period so the conflict could not reasonably be the cause for any delay during this period. Furthermore, this all assumes the only reason the entire IFC package was not released until May 5th was due to this one conflict issue, which Secretariat’s Report contradicts.

(2) Secretariat’s Phase 2, Window I (32 days allocated against Kelly)

Secretariat’s Phase 2, Window I allocated 32 days of delay against Kelly for the *same* alleged failure as described in its Phase 1, Window II. As explained in Rebuttal Opinion 1 above, this allocation of delay fails for two reasons: (1) the 32 days of delay are duplicative with the prior Window, and (2) Secretariat’s flawed methodology added 64 days of delay in this Window, when a revised methodology would show 115 days of delay mitigation to the Project-wide as-built critical path. Further, according to the Electrical Design Report, this alleged failure is the responsibility of others, not Kelly. Thus, Kelly is not responsible for the 32 days alleged by Secretariat in this window.

¹⁶ See Exhibit 4 for drawing 4804181 Sheet 2 Rev 1 and Rev 1A. According to Mr. Tom Lee, drawing sheet 4804181 Sheet 2 called out 83 total conduits in the Rev 1 version (issued in February 2018). The Rev 1A version (issued in May 2018) called out 256 conduits. $[256-83] \div 83 = 208\%$

¹⁷ Per Secretariat Report, paragraph 5.50.

¹⁸ Per AEC00694097, D. Goward Email dated April 12, 2017.

¹⁹ Per Burney000343224, Email correspondence from PG&E/ Khaled Malsen.

(3) Secretariat's Phase 2, Window II (15 days allocated against Kelly)

Secretariat's Phase 2, Window II allocated 15 days of delay against Kelly for allegedly installing the underground conduit at the Auxiliary Building slower than planned. This delay occurred in the period of June 1, 2017 to July 17, 2017 according to Figure 6-25.

C2G offers the following to respond to Secretariat's erroneous allocation of delays in this Window II:

- The differing site conditions for boulder excavation extended from July 1st to July 12th. Spending the first two weeks demolishing boulders was a change in the character to the performance of a planned six-day excavation activity. Secretariat's photographs further support the congested and impacted site conditions discussed in my Affirmative Report.
- As part of Kelly's mitigation measures, Kelly resequenced its planned schedule for the underground electrical with the concrete foundations, and as a result, incurred slower excavation working around the concrete footings. Secretariat's Figure 6-25 shows the plan was to start installation of underground conduits from March 29, 2017 and complete April 3, 2017, three days in advance of completing FRP (aka: form/rebar/pour) footings and pedestals. As the as-built schedules and photographs show, Kelly completed the concrete FRP footings and pedestals several weeks earlier, from April 24th to May 4th, in order to mitigate the electrical delays. As a result, Kelly had to use heavy equipment to break boulders and excavate around the concrete foundations, adding to a slower production. This was a significant change in the character of this work, as shown in Secretariat's photograph Figures 6-12 to 6-16.
- Secretariat's Figure 6-17 references C2G's Prior Report graphic which showed the growth of ductbanks and conduit at the auxiliary building. This figure shows that Kelly planned for two ductbanks, and actually received drawings showing five ductbanks. Project photographs included in Secretariat's report show a significantly congested site due to shifting the conduits to underground, resulting in added detailing, planning, layout, logistics, and coordination around the resequenced concrete footings. This growth and impact would account for slower production; beyond what was considered in the planned six-day duration for underground conduit. This was a material change in the character of the timing and construction of this scope compared to the plan.
- Similarly, Figure 6-17 shows the amount of conduit grew at the auxiliary building from 900 lineal feet to 2,800 lineal feet – a growth of over 300%. As Secretariat's photographs show, planning, detailing, laying out, and installing three times as much conduit into a congested building footprint is more difficult than one could have planned for, especially around the resequenced concrete footings. Furthermore, I do not believe that Secretariat's 19-day mathematical extrapolation in paragraphs 6.77 and 6.78 account for the loss of productivity due to these changes in the character of the work.
- Changes to the designs affected Kelly's planned sequence of conduit fabrication and deliveries. Procuring additional materials and fabricating the 300% design growth were the responsibility of PG&E.

- Secretariat ignores its prior blame of the “PG&E preferential changes to the electrical design” to the scope, complexity, and effort to install the redesigned underground electrical conduit – describing the impact as “...*this new design criteria is a fundamental change...*”²⁰ Secretariat even quoted Mr. Goward’s deposition testimony, in which he described the impact of installing underground conduit in such large volumes in a piecemealed and reactionary mode, “*Khaled [PG&E] came in and said hey, I want everything to come up through the slab. I don’t want to see conduit on the walls unless there’s a special exception. That’s a big change. Putting everything underground and having to pinpoint exactly where those stub-ups need to go is absurd. Normally you would have the contractor, like JH Kelly, field route the conduit.*” Secretariat’s use of these quotes substantiates my opinion in the Affirmative Report that there was a change in the character of work for this Project.
- Secretariat blames the 15 days of delay on Kelly’s manpower not being ramped up to meet the delayed and resequenced schedule. The cause of the delay is due to AECOM and PG&E as of this point of the Project, and thus having electrical craft labor onsite in large numbers would have been useless and excessively inefficient given the restricted and limited work available for the first few months of the 2017 construction. Kelly explained in its June 12, 2017 letter to AECOM that there was not enough work released due to the delays, and thus there was no need to add additional craft laborers.²¹ Once the work began to get released by AECOM and PG&E, then Kelly began retaining additional electricians, as shown in figure 6-24. Thus, if any delay is found to be attributable, it is due to the delays and resequencing caused by AECOM or PG&E. Notably, in later months, AECOM puts PG&E on notice about problems with retention and procurement of added labor on this highly disrupted and remote Project.

Overall, C2G believes these delays are in alignment with the ripple effects that one would expect in a congested or tight work space from a severely delayed and disrupted Project - incurring two weeks of differing site conditions (boulder excavation), three added ductbanks, 300% growth in conduit, resequencing of installing ductbanks and conduits around concrete footings, design changes and RFI’s, congested work site, and labor utilization or procurement problems. The magnitude of these changes would result in loss of productivity, design clarifications, additional layouts, detailing, and planning, confusion, crew or resource impacts, and delays – all things not considered by Secretariat. These impacts form a significant change in character to Kelly’s work.

(4) Secretariat’s Phase 2, Window III (Six days allocated against Kelly)

Secretariat’s Phase 2, Window III allocated six days of delay, from October 14, 2017 to October 20, 2017, against Kelly for allegedly being unable to progress work near a damaged gas line that was struck by a fuel truck owned and operated by a subcontractor to Kelly. Kelly disputes that this incident

²⁰ Secretariat Report, paragraph 5.48.

²¹ Kelly June 12, 2017 Letter to AECOM, “Notice of Delay and Cost Impact” (AEC00026532).

resulted in six days of delay, and notes that even using AECOM contemporaneous documents and Secretariat's own analysis, proves that Secretariat's six day allocation is incorrect. The following summarizes the multiple reasons why Secretariat's analysis is incorrect and unreliable, with each reason being further explained below.

1. Secretariat incorrectly describes the gas line strike as "A project shut down" for the six days.²²
2. The critical path is not through underground ductbank, but rather through the Auxiliary Building (where the Baseline Schedule critical path was planned).
3. Secretariat fails to explain the inter-relatedness of the critical path jumping from the Auxiliary Building to the underground ductbanks, only to return to the Auxiliary Building when the underground ductbanks are only partially complete.
4. AECOM's October 2017 Monthly Report states the critical path was in the Auxiliary Building and makes no mention of Project delays due to the line strike.
5. Secretariat's use of the contemporaneous AECOM Monthly Reports demonstrates that the delays are due to PG&E changes to the electrical design, excavation hydrovac requirements, and differing site conditions.
6. Even if Secretariat was correct, and the critical path for the Project was in the underground ductbanks in October 2017, the line strike was not controlling the progress of work during its alleged delay for the following multiple reasons:
 - A. Secretariat failed to account for 14-15 days of PG&E utility conflict delays to releasing the underground ductbanks prior to the line strike.
 - B. The line strike only affected a limited quadrant of the work, and two ductbanks (DB 6 and DB 7) – Thus other areas progressed or were delayed due to PG&E.
 - C. The two ductbanks were substantially complete or delayed by PG&E.
 - D. Of the numerous ductbanks on the Project, Secretariat's own narrative and critical path shows that three separate ductbanks (DB 27, 51, and 52) were controlling the critical path at this time, and those ductbanks were contemporaneously being delayed by PG&E or boulders.
 - E. Secretariat's critical path in Window III shifts on December 16, 2017 from ductbank installation to Auxiliary Building wire terminations and testing – a questionable logic change that appears to have several flaws.

1. Secretariat incorrectly describes the gas line strike as "a Project shutdown" for six days.

As presented below, the gas line that was hit was located in the northeast quadrant of the Project site. On October 14, 2017, the site was impacted and I understand it was shut down for the remaining portion of the day following the incident. However, as documented in the Kelly daily reports, only the northeast quadrant of the Project site was impacted through October 20, 2017. The ductbanks in this area (DB 6

²² See page 88, paragraph 6.88(b) for description of delay by Secretariat.

and 7) were either installed and slurry backfilled prior to the strike or pending delays due to unobtained PG&E clearances. Kelly's daily reports show that work throughout the Project, including ductbanks, continued during this six day duration. Further, these daily reports show that Secretariat's alleged critical ductbanks, DB 27, 51, and 52 (and other later ductbanks) were being delayed by PG&E's failure to timely obtain environmental clearances before, during, and after the alleged six-day impact. Secretariat's analysis has failed to present this information.

2. The critical path is not through underground ductbank, but rather through the Auxiliary Building (where the Baseline Schedule critical path was planned)

As presented in C2G's Affirmative Report, the critical path in construction started in the Auxiliary building and continued through the Auxiliary Building. C2G's as-built schedule shows a continuous chain of inter-related activities in the construction of the Auxiliary Building that logically ties to the Project completion milestones. This is the same location of the planned critical path in the Baseline Schedule, and in the AECOM Monthly Reports.

Notably, Secretariat's critical path for construction Phase 2 activities starts in the Auxiliary Building, then jumps to underground ductbanks, and returns to the Auxiliary Building. As explained below, these critical path logic ties by Secretariat appear illogical and unsupported.

3. Secretariat fails to explain the inter-relatedness of the critical path jumping from the Auxiliary Building to the underground ductbanks, only to return to the Auxiliary Building.

As explained in the Rebuttal Opinion 1 above, Secretariat makes several methodology errors which affect the credibility of their critical path and schedule analysis. As it relates to this delay measurement in its Phase 2, Window III, Secretariat started the critical path in the Auxiliary Building, through completion of the Auxiliary Building underground conduit on July 17, 2017. Following completion of the underground conduit in the building, Secretariat's critical path jumps from the Auxiliary Building to the underground ductbanks that Figure 6-2 shows are in progress as of July 18, 2017.

This shift in the critical path requires a logical explanation to show how the auxiliary building and underground ductbanks are inter-related and control one another. C2G reviewed Secretariat's as-built schedule and the Kelly daily reports and found that no ductbank installation was ongoing as of the July 18, 2017 critical path switch in Figure 6-2. In fact, no ductbanks started until approximately two weeks later in early August 2017 due to PG&E camera/security conduit conflicts. Secretariat failed to address this in their analysis or allocate the two weeks of delay to PG&E.

Further, when Secretariat's critical path shifts on December 16, 2017, it only references a December 16, 2017 Kelly daily report as the source, with no explanation. This daily report does not reference Secretariat's "commence terminations and testing". Additionally, C2G found no activities in the as-

built schedule for commencement of terminations or testing starting on December 16, 2017, and C2G believes Secretariat skipped the construction sequence activity for pulling wire, before terminating wire. Further explanation is needed to support this logic change in the critical path.

4. AECOM's October 2017 Monthly Report states the critical path was in the Auxiliary Building, and makes no mention of Project delays due to the line strike

Secretariat references numerous Project documents, including the AECOM monthly reports. Although it references the October 2020 Monthly Report in this Window of delay analysis, it fails to note the following:

- The AECOM Monthly Report does not mention “a Project shutdown” delay of six days due to a gas line strike; rather, the incident is simply listed as a safety incident.
- The AECOM Monthly Report schedule section identifies the critical path as being in the Auxiliary Building.

5. Secretariat's use of the contemporaneous AECOM Monthly Reports demonstrates it is ignoring AECOM's blame of the alleged delays on PG&E that changed the character of the underground installation work throughout the entire Project.

September 2017 AECOM Monthly Report: In the Secretariat Report, paragraph 6.93, Secretariat refers to the September 2017 AECOM Monthly Report. AECOM's report blames PG&E for the ongoing underground delays, disruption, and impacts, as follows:

- Page 4, “*Construction progress is behind schedule. The causes of this issue are many, including but not limited to late finish of electrical design resulting from PG&E implementing a new resiliency design after the 90% design review stage; poor performance by PG&E's approved suppliers with respect to meeting delivery dates; and delays in the issuance of building permits by Shasta County Department of Resource Management.*”
- Page 4, “*By delaying the station shutdown by approximately 6 weeks, AECOM and its construction subcontractor will be forced to do the most critical construction activities as the weather begins to worsen.*”
- Page 4, “*Differing [site] conditions continue to be uncovered. Solid rock and boulders continue to thwart excavation progress. In some cases we are also encountering sandy conditions necessitating wider excavations to meet OSHA requirements.*”
- Page A (PDF pg. 15), “*Issues and Concerns...Excavations have been an ongoing concern due to unclear direction as to how the excavations should be done to meet safety requirements and worker's needs.*”

Thus, prior to the line strike in Secretariat's Window III, AECOM was already notifying PG&E it was responsible for the following delay categories that were already materially impacting the character of

the installation of the underground ductbanks: (1) PG&E electrical redesigns, (2) PG&E procurement delays, (3) Shasta County building permit delays, (4) Future winter/weather impacts due to PG&E delays, (5) Differing Site Conditions due to rocks and boulders, (6) Differing site conditions due to sandy conditions requiring wider underground excavation, (7) Excavation safety requirement directives.

October 2017 AECOM Monthly Report: In the Secretariat Report, paragraph 6.93, Secretariat refers to the October 2017 AECOM Monthly Report. AECOM's report blames PG&E for the ongoing underground delays, disruption, and impacts, as follows:

- Page 4, *“Construction progress continues to be behind schedule approximately 4+ months due to a variety of events involving owner changes and delays, procurement delays (including but not limited to delays due to owner changes and vendor QA/QC of delivered materials) and permit delays. AECOM has advised PG&E that the significant design changes directed by PG&E throughout the project have and will continue to have negative impacts on the progress of construction. In addition, past and current restrictions on AECOM's subcontractor's means and methods have and continue to impede progress. These owner caused delays have pushed a significant portion of the work into the winter. Winter work at the Burney site was not contemplated as part of the project scope of work and is all additional work...PG&E declined to shutdown for the winter and instead directed AECOM to proceed as fast as possible to complete the project at the earliest possible time. IN response, AECOM developed a schedule that incorporates an accelerated work week of 6-10's and night shifts to accelerate work completion.”* (Emphasis added)
- Page 4, *“...pushing work into the wet weather season. This will result in additional delay and labor impacts for ongoing work.”*
- Page 4, *“By extending the construction phase into wet weather season, construction productivity will decline, further extending the schedule and adding high winterization costs...Craft availability competition for craft in better climates, extended work schedules, and the resultant reduction in productivity will all negatively impact the progress of the project. Mitigation measures employed include...increased per diem incentives to attract and retain craft workers, implementation of a night shift to accelerate the work without overcrowding, and incentivizing craft workers to stay in Burney during the week to minimize long commutes. However, because the delays to the schedule are primarily a result of owner directed activity, the associated costs of winter work and acceleration (\$6-10 million) are PG&E's responsibility...Actual labor impacts such as shift inefficacy, overtime inefficacy, fatigue, weather, stacking, and other factors cannot be adequately forecasted because of the variability of the factors that influence such impacts.”*
- Page 5, *“Differing site conditions continue to be encountered that are hampering excavation. Solid rock and boulders continue to thwart excavation progress. In addition, in the area of GOV-1 we are also encountering unanticipated sandy conditions necessitating wider excavations to meet OSHA requirements. Boulders are being stockpiled on the site so as not to slow work.”*

- Page A (PDF pg. 21), *“Work continued for excavation for the...DB7, DB52, and DB43...This work was impeded by continued discovery of unmarked/mismarked existing utilities and hard rock and boulders in the excavations. This work is additional work and outside the scope set forth in the Contract. Excavation work was further slowed by PG&E’s prohibition against using mechanical means in the area to complete DB7 and DB 52. As a result, rock removal was performed by hand, which substantially extended the duration of this work and likewise increased costs.”*

Secretariat ignores its own narrative citations to AECOM blaming PG&E for the delays in October 2017, rather placing blame on the valve strike by Kelly’s fuel truck subcontractor. In addition to the seven categories of changed conditions affecting Kelly’s performance, AECOM added the following additional delays and impacts: (8) Changes to AECOM’s subcontractor’s means and methods, (9) PG&E directed acceleration, including overtime and night shifts, (10) Availability of craft labor to staff the Project, and (11) Loss of productivity given the numerous impacts to the Project.

November 2017 AECOM Monthly Report: In the Secretariat Report, paragraph 6.95, Secretariat refers to the November 2017 AECOM Monthly Report. AECOM’s report blames PG&E for the ongoing underground delays, disruption, and impacts, as follows:

- Page 4, all AECOM’s delay notices are similar to those listed in the October 2017 narrative above for page 4.
- Page 5, *“Wet winter weather slowing outdoor activities and causing additional cost for excavations, pipe installation, hydro testing and other activities.”*

The November 2017 Monthly Report did not add any additional impact categories to the 11 previously listed above.

December 2017 AECOM Monthly Report: Secretariat also included the impacts from this report in paragraph 6.96.

- Page 2, all AECOM’s delay notices are similar to those listed in the October 2017 narrative above for page 4.
- Page 4, *“10. AECOM has notified PG&E that it has encountered differing site conditions in the form of unknown underground utilities and ductbanks that are not shown on the project documents...PG&E directed AECOM to remove all underground utilities and duct banks, whether shown or not. AECOM anticipates submitting an RFI/PCO covering time and schedule impacts resulting from any work ordered by PG&E.”*

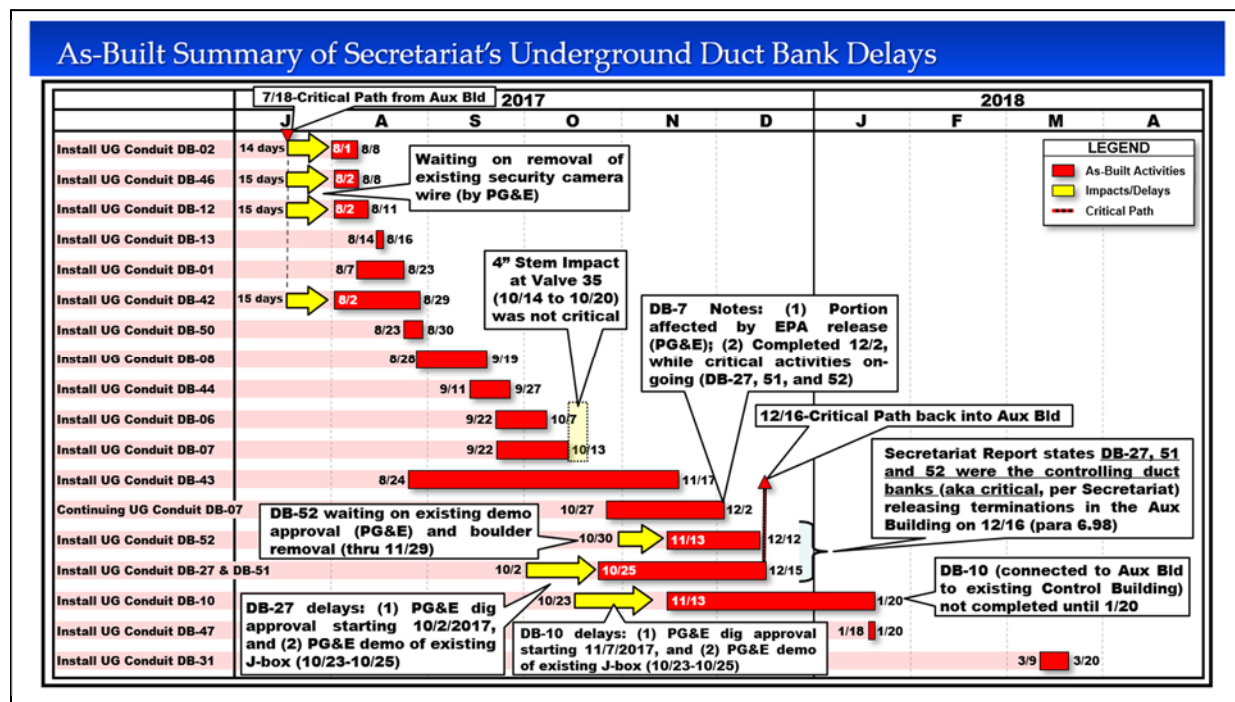
The December 2017 Monthly Report did add one additional impact category, (12) Differing site conditions due to PG&E’s unknown underground utilities and ductbanks. In total for these four months included in the Secretariat Report, AECOM reports listed 12 impact or delay categories that AECOM blamed on PG&E or others and not itself or Kelly.

Even though Secretariat included excerpts of these same AECOM Monthly Report impacts, it decided to ignore these 12 categories of significant changes in the character of the Project and underground ductbank installation methods. Rather than investigate and quantify these impacts that extended throughout several months of underground work, Secretariat's flawed schedule analysis calculated 25 days of additional delay in Window III (per paragraph 6.87), and simply subtracted six days for the isolated gas line strike, and allocated the remaining 19 days to PG&E. This unsubstantiated and erroneous allocation of delay contradicts AECOM's own allocation of the Project delay (as listed above), and as will be explained below, ignores several other PG&E delays that Secretariat missed.

6. Even if Secretariat was correct, and the critical path for the Project was in the underground ductbanks in October 2017, the line strike was not controlling the progress of work during its alleged delay for multiple reasons.

Secretariat did not provide a detailed as-built schedule of the underground ductbanks as part of its Window III schedule analysis, rather just a roll-up of ductbanks by zone in its Figure 6-34. Secretariat's summary-level Figure 6-34 includes six summary as-built durations for each zone of underground ductbanks, and not a detailed review of each specific ductbank. C2G prepared a detailed ductbank as-built schedule from the As-Built Schedule, with certain references from Kelly's daily reports as well – as seen in the graphic below. This graphic below will be used to respond to critical path allegations in Window III.

Graphic II.B.1 – As-Built Summary of Secretariat's Underground Ductbank Delays²³



²³ See Exhibit 5 for a larger version of this graphic.

6(A). Secretariat failed to account for 14-15 days of PG&E utility conflict delays to releasing the underground ductbanks prior to the line strike

As shown in the graphic above, Secretariat alleges the critical path changed from the Auxiliary Building on July 18, 2017 to the underground ductbank work. In the underground ductbank duration from July 18, 2017 to December 16, 2017 (duration of its Window III), Secretariat calculated 25 days of additional delay.

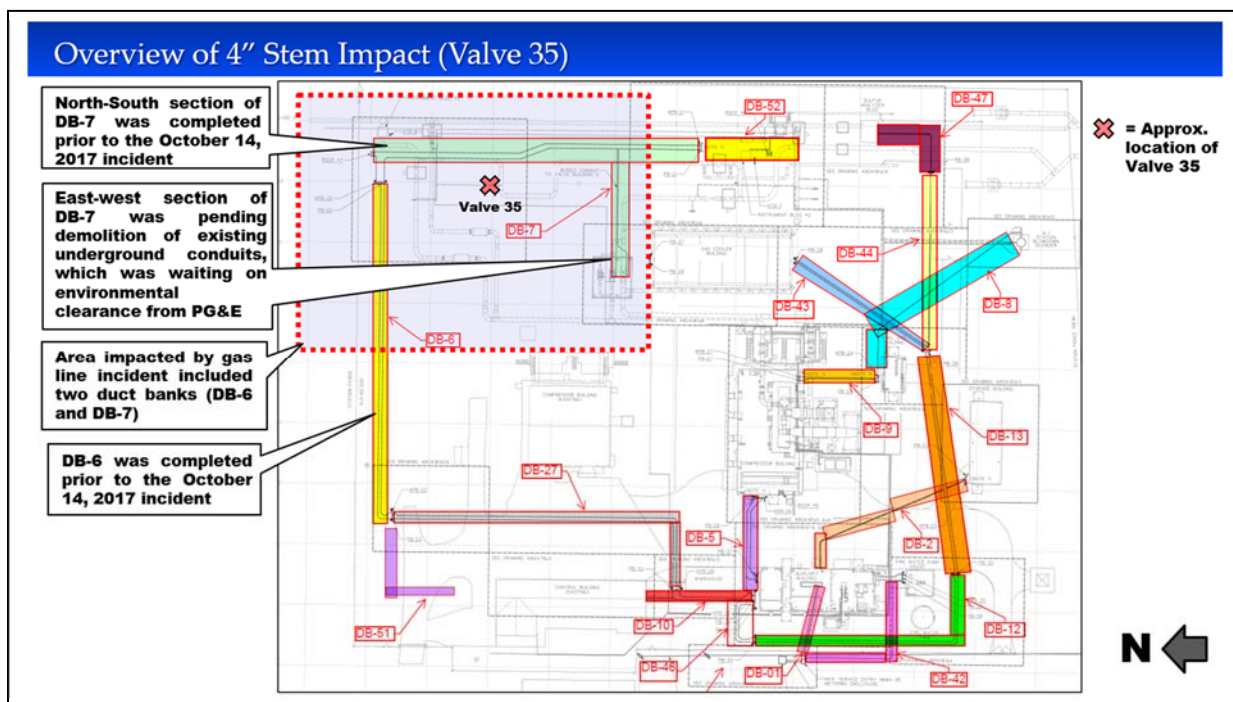
The As-Built Schedule graphic above does not show what Secretariat references as ongoing ductbank work in its Figure 6-2. Rather, it shows that ductbank activities did not start at multiple ductbanks until either August 1st or 2nd (14-15 days after Window III begins on July 18th). Both the Kelly daily reports and the Project as-built schedule confirm that PG&E delayed the start of the work – on July 18th Kelly noted “*Camera conduit could not be removed by PG&E for duct bank install*”, and on July 31st Kelly noted, “*We can’t set DB46 and DB12 until PGE removes the camera/security conduits. It is set for August 2nd, but is starting to impact our work and schedule.*”²⁴ This PG&E 14-15 day delay to the start of the underground ductbanks appears to be controlling Secretariat’s alleged critical path in underground ductbanks, yet, they failed to consider it as part of their 25-day delay allocation in Window III. Accounting for this initial delay to the start of underground ductbanks, would leave at most 11 days through the performance of the severely delayed and disrupted underground ductbank work in its Window III (25 total days – 14 days due to late start = 11 days remaining).

6(B). The line strike only affected a limited quadrant of the work, and two ductbanks (DB 6 and DB 7) – Thus other areas progressed or were delayed due to PG&E.

Secretariat introduced the line strike as “a Project shutdown” event (paragraph 6.88). However, per Kelly’s staff, and a review of the Kelly daily reports²⁵, only the immediate location surrounding the strike area was restricted during the duration for the six days. The majority of the Project was able to still continue with construction – as documented by Kelly’s daily reports from October 14th to 20th. Kelly and C2G prepared the following graphic to illustrate the gas line strike location and the area referenced as impacted following the strike. All other areas were accessible per Kelly.

²⁴ Kelly Daily Report dated July 18, 2017 and July 31, 2017.

²⁵ Kelly Daily Report example (July 16, 2017) – “DB07 and all work on east fence line has been put on hold by PGE for checking out damaged gas line and cross compression testing.”

Graphic II.B.2 – Overview of 4” Stem Impact (Valve 35)²⁶**6(C). The two ductbanks were substantially complete or delayed by PG&E.**

According to Kelly Staff, and per the Kelly daily reports that reference the northeast quadrant being impacted as shown in the graphic above, ductbanks DB 6 and DB7 were in the area that was impacted during the six-day testing period between October 14th to 20th.

Ductbank DB6, per the photographs below and as-built schedule above, was already substantially completed one week prior to the gas line strike, on October 7, 2013. Thus, there was no impact to Ductbank DB6 as Secretariat alleges.

Ductbank DB7 is analyzed in two components: (1) the north-south ductbank portion, and (2) the east-west ductbank portion (see graphic above). Per the As-Built Schedule and site photographs, the first area of DB7 that ran north-south was installed and covered with concrete “red mud” slurry on October 13, 2017 – thus, substantially complete prior to the gas line strike.

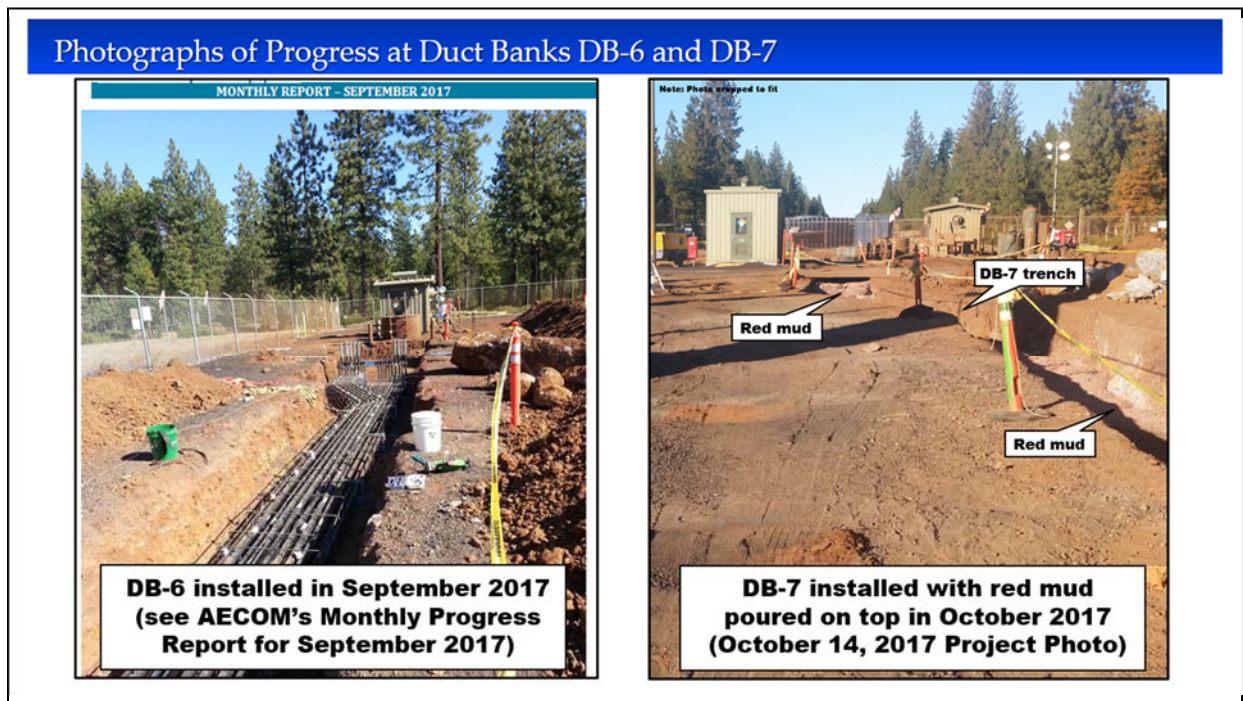
The second east-west ductbank portion was delayed before, during, and after the gas strike by the release of the ductbank area due to PG&E. This second area was pending demolition of existing underground conduit that needed to be out of the way before new work could be installed. This demolition work was on hold because of PG&E environmental clearance that needed to be obtained from the State of California Environmental Protection Agency (“EPA”), which did not occur until well after the incident was resolved. PG&E did not notify the EPA until November 13, 2017 and 10 business

²⁶ See Exhibit 6 for a larger version of this graphic.

days were required before demolition could occur. Environmental clearance was granted to PG&E on November 28, 2017 and Kelly completed demolition shortly thereafter on December 1, 2017.²⁷ Thus, this section of duct bank was delayed due to PG&E, not the gas line incident. Thus, prior to the gas line strike event on October 14, 2017, all remaining DB 7 ductbank work in that area of the job was already delayed by PG&E. Secretariat failed to consider this in its analysis.

The photographs below show pre-October 14, 2017 status of ductbanks DB6 and the north-south area 1 of DB7.

Graphic II.B.3 – Photographs of Progress at Duct Banks DB 6 and DB 7²⁸



6(D). Of the numerous ductbanks on the Project, Secretariat’s own narrative and critical path shows that three separate ductbanks (DB 27, 51, and 52) were controlling the critical path at this time, and those ductbanks were contemporaneously being delayed by PG&E or boulders.

Secretariat’s Window III narrative for this time period described the critical path as being driven by ductbanks DB 27, 51, and 52 – *“JH Kelly completed duct banks 27, 51, and 52 by 15 December 2017. The completion of these duct banks allowed JH Kelly to commence terminations and testing in the Auxiliary Building on 16 December 2017.”*

Based on this statement, and the more detailed as-built schedule of ductbanks provided in Graphic II.B.1 above, Secretariat’s three ductbanks were not delayed by the gas line strike– rather they were

²⁷ See activities PG&E00130 and PIPE01260 in the As-Built Schedule (Exhibit III.2 to C2G’s Affirmative Report).

²⁸ See Exhibit 7 for a larger version of this graphic.

delayed by PG&E for the following two reasons: (1) DB 27 and 51 did not start until October 25th (five days after the gas line strike impact), and DB 27 was noted in the Kelly daily reports to be delayed since approximately October 2, 2017 due to PG&E dig approvals and PG&E's demolition of existing J-boxes in conflict²⁹, and (2) DB 52 did not start until November 13th (one month after the gas line strike) due to waiting on PG&E existing demolition approvals and boulder differing site condition removals.³⁰ Secretariat failed to consider these delays in its questionable allocation of the 25 days of delay in this Window.

6(E). Secretariat's critical path in Window III shifts on December 16, 2017 from ductbank installation to Auxiliary Building wire terminations and testing – a questionable logic change that appears to have several flaws.

Secretariat's Window III narrative for this time period described the critical path as being driven by ductbanks DB 27, 51, and 52, which completed December 15, 2017, and returned the critical path back to Auxiliary Building wire terminations and testing activities - *"JH Kelly completed duct banks 27, 51, and 52 by 15 December 2017. The completion of these duct banks allowed JH Kelly to commence terminations and testing in the Auxiliary Building on 16 December 2017."*

C2G questions Secretariat's analysis and critical path logic for the following reasons:

- First, although ductbanks DB 27, 51, and 52 were complete as of December 15, 2017, the As-Built Schedule in Graphic II.B.1 above shows that additional ductbanks were still not started or completed as of this date. Ductbanks DB 10, 47, and 31 are shown to extend to January and March 2018. Notably, as seen in Graphic II.B.2 above, Ductbank DB 10 connects the northern half of ductbanks to the Auxiliary Building, and therefore would impact pulling of wire within all these ductbanks. Secretariat has not included an explanation of how these latter three ductbanks did not affect its ductbank critical path logic.
- Even assuming Secretariat was correct with its logic that ductbank installation completion on December 15th released wire terminations and testing in the Auxiliary Building the next day of December 16th, its critical path appears to skip the next logical sequence of electrical construction, pulling wires through the conduits that would allow for wire terminations. General electrical construction sequence would include (1) installation of the conduits, (2) pulling wires through the conduits, (3) termination of the wires, and (4) testing. In fact, Secretariat references Kelly's December 16, 2017 daily report to somehow support its critical path logic shift, however, under the "Plan for tomorrow" section, Kelly stated, "complete duct bank 27, set up for wire pulls." Secretariat's questionable logic change omitted step 2, or the logical activity of having wires in the critical ductbanks DB 27, 51, or 52 to actually terminate.

²⁹ Kelly Daily Report dated October 17, 2017 – "Hindrances to work...It's slow getting trench digs approved by PGE. DB-027 we've been working on close to 2 weeks for approval. And a week for DB043." "Work Accomplished Today...Electrical...Talk to Barnhart trench coordinator to help us speed up permitting from PGE."

³⁰ Per discussions with Tom Lee of Kelly, and Kelly Daily Reports.

- Secretariat's logic shift is also questioned, given that Step 2 for wire pulling (as described above) is shown to start well before Secretariat's December 16, 2017 date. Activities ELEC00260 for large wire started December 1, 2017 and finished January 16, 2018, and ELEC00250 small wire pulling in the auxiliary building started December 5, 2017 and finished April 23, 2018. None of these as-built dates support Secretariat's analysis.
- Similarly, the As-Built Schedule identified numerous wire termination activities, none of which start on December 16, 2017. C2G notes that Secretariat Figure 7-2 relies on a different schedule forecast for the commissioning schedule, which includes a December 16, 2017 start date, however, this date has not been substantiated as a logically related activity start date to the preceding ductbank 27 completion date.

(5) Secretariat's Phase 2, Window IV (Eight days allocated against Kelly)

Secretariat's Phase 2, Window IV identified 20 total days of additional delay. Secretariat identified 12 days for the project shutdown (an unplanned winter holiday shutdown due to AECOM's/PG&E's preceding delays to Kelly's performance). Thus, Secretariat identified a remaining eight days of delay (20 days total – 12 holiday days = 8 days remaining), for which it allocated against Kelly for allegedly pulling and terminating wire slower than planned.

Secretariat's allocation of the remaining eight days to Kelly is highly questionable at best. In a simple three sentence paragraph without any support, Secretariat dismisses it numerous pages of references to PG&E delays that affected Kelly's unplanned winter performance. Secretariat's paragraph 6.114 states, *"After recommencing this work, it took longer than planed for JH Kelly to pull wire such that JH Kelly was only 30% complete with this work when the critical path shifted into Commissioning. While it is possible that some of this additional time was due to PG&E's preferential changes (i.e., added duct bank and conduit), I do not have the records available to me to determine how much, if any, time should be allocated to PG&E. Therefore, for purposes of this report, I have assumed all of the delay is due to JH Kelly as this was part of their scope to complete in a timely manner."* [emphasis added]

Secretariat's highlighted excuse in the paragraph above further substantiates its incomplete analysis – they had the documents and analysis available and they used the documents within other parts of their report, as follows:

- As described in the Window II rebuttal above, Secretariat referenced to the AECOM Monthly Reports which provided months of notices for at least 12 categories of impacts, delays, disruptive events, and changed conditions that affected Kelly's performance and productivity in the field. Pages 91-92, and 102 in the Secretariat Report reference impact narratives AECOM made against PG&E. These available documents show that AECOM placed all the performance problems and loss of productivity on the change in character to the performance of the work for the 12 categories of impacts. In fact, Secretariat's January 2018 Monthly Report reference on

page 102 cites why there are delays during this Window of time – *“Issues affecting the critical path this month include but are not limited to ongoing changes to the electrical design and impacts due to winter weather, extended overtime schedules and increased absenteeism...”*

- For example, industry guides show a loss of productivity for extended work in winter weather range from minor of 10% to 30% severe – thus, for every 3-10 days, a day is lost.³¹
- For example, industry guides show a loss of productivity for extended overtime from week to week can range from 10% minor, to in excess of 20% on a cumulative weekly basis. Thus, a similar day of productivity is lost every 5-10 days.³²
- Stopping and starting for an unplanned 12-day holiday break requires preparation, clean-up, work protection, and tool storage in advance of the break. Upon return from the break, it is common to have a ramp-up, unpacking, and preparation period. It would be reasonable to assume an additional half-day to full day is lost due to this unplanned break.
- Ongoing changes to electrical design – Per C2G’s Prior Reports, a log of IFC drawings shows electrical IFCs issued through November 2017, with RFI’s still ongoing. These ongoing changes would affect productivity.
- Secretariat had the Prior C2G Reports available during its analysis. In the February 28, 2018 C2G Report, C2G explained on pages 40 – 42 numerous electrical related impacts, changes, and delays which changed the character of the Project, including electrical scope. Notably, C2G reminds Secretariat that the electrical in the Auxiliary Building significantly grew and was modified to where the character of the electrical work in the actual performance was significantly different from planned:
 - Planned above-grade electrical was shifted to underground, resulting in the plan for two ductbanks changing to five underground ductbanks,
 - The overall electrical scope grew by approximately \$2.68 million, a 54% increase to Kelly’s electrical scope. The Auxiliary Building grew by \$320,000.
 - Numerous changes to scope project wide and means and methods – exemplified by ductbanks growing by 2,800 lineal feet, and an additional 5,000 lineal feet of fiber optic cabling and 240 fiber optic terminations. The growth on this project would easily account for eight extra days of work on a highly disrupted project in the middle of winter.
 - Kelly incurred numerous hindrances and stops and starts to its performance which are identified in Kelly’s daily reports and C2G’s Prior Reports. The numerous hindrances result in a greater loss of efficiency.
 - Kelly, AECOM, and C2G all discussed and provided PG&E notice of the labor impacts that their changes, delays, and impacts were causing Kelly. This resulted in numerous

³¹ Mechanical Contractor’s Association of America (MCAA), Management Methods Bulletin, 2018, “Factors Affecting Labor Productivity”.

³² Mechanical Contractor’s Association of America (MCAA), Management Methods Bulletin, 2018, “Factors Affecting Labor Productivity”. Also, MCAA “Change Orders, Productivity, Overtime: A primer for the Construction Industry”, 2018.

demobilizations and remobilizations to work areas, and eventually labor retention and recruitment.

(6) Secretariat's Phase 3, Window VI (Nine days allocated against Kelly)

Secretariat's Phase 3, Window VI allocated nine days of delay against Kelly for alleged strainer installation impacts during the commissioning of the Project.

C2G provides the following responses to Secretariat's delays during commissioning:

- Per C2G's Affirmative Report, C2G questions Secretariat's critical path during this Phase 3 commissioning time period.
- Secretariat failed to consider that Kelly was a support contractor during the commissioning Phase 3 scope per the Contract. Kelly was operating under an allowance budget on a time and materials compensation basis. These contractual arrangements confirm that Kelly was taking direction from AECOM and was not responsible for managing the scheduling or performance of the work.
- Even assuming Secretariat's critical path is correct, it failed to address its noted concurrency between the CAT standby generator harness impact and the strainer issue for six of the nine days. Secretariat's critical path charts and paragraph 7.91 state the strainer issue is "*Concurrent with the Stand-By Generator harness issue...*", which is an AECOM subcontractor issue, and extended from May 4th to May 9th.
- Even assuming Secretariat's critical path is correct, it failed to review related change order documents which contradict its nine-day allocation to Kelly. Secretariat states that the nine day delay started on May 4, 2018 and extended to May 13, 2018. Change Order Request 332 correspondence and support documents shows that AECOM actually was managing the extraction of the strainer, had problems, could not subcontract with the correct subcontractors, and requested assistance from Kelly.³³ Further, AECOM agreed to compensate Kelly and the requested subcontractor for the rework of work associated with the strainer and "*any other requirement to support the strainer or compressor start-up commissioning activities.*" AECOM wrote to Kelly on May 4, 2018, "*Yesterday we [AECOM] removed the suction strainer spool for the compressor for cleaning and when we tried to reinstall it the spacing between the flanges on the piping was inadequate to accommodate the take out length spool with new gaskets. We need to machine down the raced faces of the spool flanges and piping flanges. We contracted Tri Tool and they are available. Can JHK line up this activity?*"
- Kelly Responded on May 4, 2018 stating that since it was a commissioning activity that they preferred that AECOM subcontract the scope directly with Tri-Tool.

³³ See Exhibit 8 for COR 332.

- Subsequently, on May 4, 2018 AECOM responded asking again for urgent assistance and compensation. AECOM's email states, "AECOM does not have a contract with Tri-Tool but JHK does and as you are aware the Burney Project is at a critical stage for starting up the Solar Compressor. We'd like to request that JHK support the project by using your Tri-Tool contract affiliation to provide the requested support on site to re-install the pipe spool. As mentioned this is a critical time on the project and AECOM agrees to reimburse JH Kelly for the cost of mobilizing Tri-Tool today to execute this spool machining and any other requirement to support the strainer or compressor start-up commissioning activities."
- Project correspondence and documents show that Kelly cooperated with AECOM's request, retained Tri-Tool to implement AECOM's extra work during this time period, and supported AECOM's commissioning activities. COR 332 supporting documents further show that AECOM approved the extra work, and in a November 14, 2018 letter Mr. Divers from AECOM agreed to compensate Kelly for the extra work. Secretariat failed to explain how this AECOM directed and compensable extra work request is now a delay event allocated to Kelly.



James Melvin Torres

III. Exhibits

1. Graphic II.A.1 – Summary of As-Built Project Phases and Critical Path – Secretariat vs. C2G
2. Graphic II.A.2 – Overview of Secretariat’s Duplicative Delay Allocated Against Kelly
3. Graphic II.A.3 – Review of Secretariat’s As-Built Critical Path (Figure 6-2) – Phase 2 Gap
4. Drawing 4804181 Sheet 2 Rev 1 and Rev 1A
5. Graphic II.B.1 – As-Built Summary of Secretariat’s Underground Ductbank Delays
6. Graphic II.B.2 – Overview of 4” Stem Impact (Valve 35)
7. Graphic II.B.3 – Photographs of Progress at Duct Banks DB-6 and DB-7
8. Change Order Request 332